

# Interstate 90 – Snoqualmie Pass East

## VISUAL IMPACT ASSESSMENT DISCIPLINE REPORT

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**Washington State  
Department of Transportation**

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## **SUMMARY**

### **PROJECT OVERVIEW**

Several common route alignment alternatives, as well as a no-build alternative (existing conditions), were analyzed for this study. The five Project Sections were analyzed within four Landscape Units. Landscape Units are based on topography. The project proposes increasing traveler safety by flattening curves, avoiding rockfall areas, and providing an additional lane in each direction between Mile Post (MP) 55.10 and MP 70.30.

### **STUDIES AND COORDINATION**

The visual analysis was performed following the guidelines of the U.S. Department of Transportation, Federal Highway Administration publication “Visual Assessment for Highway Projects.” March 1981. Viewpoints were selected both from the highway and toward the highway according to visibility of the project, accessibility to the public, frequency of public use, and their representation of the overall impacts within the study area. These views were analyzed for vividness, intactness, and unity.

This section of I-90 runs through Forest Service managed land. The Washington State Department (WSDOT) is coordinating with the USDA Forest Service on Architectural Design Standards for the I-90 corridor. In addition, WSDOT coordinates with the Forest Service on plant selection and location, and the collection of native seeds and salvage of native vegetation for the purpose of roadside revegetation and restoration within the project limits.

This section of I-90 is a part of the Mountains to Sound Greenway National Scenic Byway. WSDOT is coordinating with the Mountains to Sound Greenway Trust to ensure visual elements of the project will complement this status. The National Scenic Byway designation for the Mountains to Sound Greenway is based upon the route’s “scenic character, intrinsic qualities, recreational opportunities, and general environmental experiences that exist along this heavily traveled route.”<sup>1</sup> Because the designation is based upon the route’s outstanding scenic character and significant environmental experiences, any changes in the corridor must be careful to retain those qualities as much as possible along the I-90 corridor. In addition, the project corridor is designated as a Washington State Scenic Byway.

## **AFFECTED ENVIRONMENT AND IMPACTS**

### **Landscape Unit 1**

Landscape Unit 1 runs from the western project limits along the entire eastern shore of Lake Keechelus. The view from the road is of a sharp rise to the east, the lake, and distant mountains. The dominant landscape character in this unit is openness. This is the only Landscape Unit with

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<sup>1</sup> Mountains to Sound Greenway Implementation Plan, Volume I. P 1-6. 1998

extensive views toward the road, principally from John Wayne Pioneer Trail, a part of Iron Horse State Park, which runs along the western shore of Lake Keechelus.

There are three alternatives to the existing condition for this Landscape Unit, the long tunnel, the short tunnel, and the bridge alternative. The bridge alternative would place a large structure over the lake near the southern end. The tunnel alternatives would deprive the traveler of the lake view while in the tunnel while enhancing views toward the lake. The bridge alternative has the highest visual quality rating from the road because of the large amount of land in the abandoned roadway that could be restored to native forest and because it brings the viewer closer to the water. The short tunnel alternative has moderately high visual quality ratings both from the road and toward the road. The long tunnel alternative had a very low visual quality rating from the road because of the loss of the view while in the tunnel. Views *toward* the road are high for the long tunnel alternative.

## **Landscape Unit 2**

Landscape Unit 2 is defined by broad, relatively flat topography as the road runs along the eastern side of the narrow valley formed by the Yakima River. Here the landscape allows a wide median between the eastbound and westbound lanes of traffic.

The dominant landscape characteristic in Landscape Unit 2 is of a forested foreground. There are no significant views toward the road in this Landscape Unit.

Alternative alignments in this Landscape Unit follow the existing alignment and add one lane in each direction. Total visual quality ratings for the four Key Views are equal to, or greater than, existing conditions.

## **Landscape Unit 3**

Landscape Unit 3's topography is similar to that of Landscape Unit 1 with a rise to the northeast and a valley to the southwest. The character of Landscape Unit 3 is mixed. There are steep cut rock faces and forested foreground views. The road curves sinuously with only a Jersey barrier separating the directions of traffic.

Electrical transmission lines run parallel to the road to the southwest. These lines lie approximately 400 feet from I-90.

There is one alternative for this part of the project: a minimum width median. An additional lane of traffic in each direction would be accomplished by vertically separating the two directions of traffic. Some of the trees currently lining the southwest roadside would be removed to accomplish this. Their removal would increase views of the transmission lines outside the right of way. Total visual quality ratings in the vicinity of the transmission lines would be slightly lower after the project for that Key View. The other Key View within this Landscape Unit would have views equal to existing conditions after project completion.

## **Landscape Unit 4**

Landscape Unit 4 runs along a plateau south of Lake Kachess. There is room for a wide median that forms a hill between the two directions of traffic. There is a secure feeling driving through this section because of the wide median and the enclosure of the forest on both sides of the roadway. Mountain views are seen straight ahead, in the distance. This Landscape Unit forms the

southeastern entry into the project area and is the eastern entry into the forests of western Washington.

There are two principal alignments in this Landscape Unit. One follows the existing alignment and adds one lane in either direction. The other provides a minimum width median for one mile at the top of Easton Hill to allow for one bridge for wildlife crossing.

The minimum width median alternative has lower visual quality ratings than the existing condition. Retention of the wide median with application of the Architectural Design Standards and vegetation restoration provides a higher visual quality rating for the alternative retaining a wide median.

## **MITIGATION**

### **Construction**

Construction visual impacts are temporary in nature. Mitigation may include limiting construction at night to minimize glare.

### **Permanent Project Impacts**

Mitigation measures for permanent project impacts include:

- Use of Architectural Design Standards for this project using a “Cascade” style design theme developed by the project team in conjunction with the US Forest Service and the Mountains to Sound Greenway Trust. This provides corridor continuity and rhythm. These standards include style, color, and texture of the manmade elements.
- Use of directional luminaires to minimize glare to surrounding areas and to focus light on the chain-up areas.
- Use of vegetation, walls, or barriers to screen car movements from oncoming traffic and from views toward the road.
- Use of trees and other vegetation around tunnel portals and bridge structures to bring the structure down to human scale, to visually tie the structure to the surrounding areas, and to soften and screen the structures within the viewshed. This can include planting terraces on the structures themselves.
- Vegetate embankments to soften and blend the roadway with the surrounding landscape and to provide a sense of continuity throughout the project corridor.
- Vegetate the median with shrubs to provide a visual screen between oncoming lanes of traffic.
- Use vegetation and compost filter strips to absorb stormwater to avoid the use of large drainage ponds. This should include the retention of large trees where possible as they take up large amounts of water and their loss will require mitigation for stormwater impacts. Where stormwater ponds are needed, use linear swales in the median with small multi-stem trees and shrubs.
- In addition, the roadside will be restored according to the *Roadside Classification Plan*’s “Forest” classification at Treatment Level 2.

# 1. INTRODUCTION

## 1.1. REPORT ORGANIZATION AND SCOPE

This study is organized by Landscape Unit with Key Views both from the road and toward the road within the Landscape Units. Numbers designate Key Views from the road, while Key Views toward the road are organized by alphabet. Views considered but not analyzed are found in the Appendix.

The scope of this study is limited to twenty-four key locations typical of each Landscape Unit or from which views were especially important. Views toward the highway were chosen based upon number of viewers and duration of possible views.

## 1.2. OVERVIEW OF I-90 CORRIDOR PROGRAM

### 1.2.1. History

Interstate 90 spans 300 miles in Washington from the Port of Seattle to the Idaho state line. Then, it continues east across the United States. The Washington State Department of Transportation (WSDOT) is developing a plan that will improve a portion of this corridor on the eastern side of Snoqualmie Pass from Milepost (MP) 55 to MP 70 (Hyak vicinity to the West Easton Interchange [I/C]). This section is part of what once was old US Highway 10 (the Sunset Highway).

Starting in the mid-1920s and through the 1930s, the Sunset Highway was constructed with Portland Cement Concrete Pavement (PCCP), replacing the older route known as Snoqualmie Pass Road. In the early 1950s, a snow shed was constructed in the vicinity of present-day MP 58. At that time, four lanes were anticipated so an allowance for two additional lanes to the outside of the snow shed was made. During the late 1950s and early 1960s, most of the roadway along Lake Keechelus and along Easton Hill was reconstructed to a four-lane facility with a common median, while new two-lane roadways were constructed along side most of the remaining Sunset Highway alignment. By the late 1960s and early 1970s, the original remaining old Sunset Highway portions and Slide Curve were realigned to meet interstate design standards and were repaved with new PCCP, and Highway 10 became part of the country's Interstate Highway System I-90. The existing snow shed continued to protect the westbound lanes, but nothing was constructed to protect the eastbound lanes in the avalanche-prone area.

The existing roadway is PCCP. The estimated life of the PCCP was 30 years. In the early 1980s, pavement cracking and panel settlement of the sections that were built in the late 1950s became apparent, and projects were developed to grind and retrofit the worst areas. By 1994, virtually the entire pavement structure from Hyak to the W. Easton I/C was showing signs of deterioration. Recent projects that have overlaid stretches of the PCCP with Asphalt Concrete Pavement (ACP), or have installed dowel bars into the existing concrete panels and diamond ground the concrete roadway, will extend the life of the roadway another 7-10 years.

### 1.2.2. I-90 Today

I-90 is the main east-west transportation corridor across Washington State, and is vital to the state's economy, including shipping, recreation, and business travel. More than 25,000 vehicles

cross the pass daily, including over 6,000 freight trucks. In 20 years, the daily traffic volume over Snoqualmie Pass is expected to increase by 20,000 vehicles. A sound multi-modal transportation system is needed to support the existing economy, facilitate desired growth, reduce the cost of congestion and inefficiency, and serve as a link to promote success in all regions.

Washington is the most trade-dependent state in the country according to the Washington State Economic Development Board. It is uniquely positioned as a gateway to the global economy. Maintaining transportation connections between ports, manufacturing and industrial centers, agricultural regions, and other key locations directly benefits the health of the state's economy.

Washington State possesses both a diverse geography and economy. Agriculture, wood products, fishing, aerospace, biomedical, manufacturing, technology-related, and other industry all depend on the transportation network to move customers, employees, goods, and supplies. A sound transportation network means lower freight costs which may then be passed on to consumers as lower prices for goods, to workers as higher wages, and to owners of businesses as higher income.

### **1.3. NEED FOR THE PROPOSED ACTION**

The safety of the traveling public is a primary concern of WSDOT. Two of the primary needs of the project are to:

1. Reduce the risks of avalanches to the traveling public and eliminate road closures required for avalanche control.
2. Reduce the risk of rock and debris from unstable slopes reaching the roadway.

Some safety options being considered are construction of bridges in front of, or tunnels behind the avalanche zones, flattening unstable slope to an angle of less than 30 degrees, and installing rock bolting and netting. This would eliminate much of the avalanche and slide danger.

The following sub-sections expand upon the issues and trends that influence the need for the proposed action, particularly with respect to travel demand and travel congestion, and the attendant effects on freight mobility and safety.

#### **1.3.1. Growth in Travel Demand**

The growth rate along this section of I-90 is projected to be 3.5% annually. If additional lanes are not constructed, I-90 is predicted to operate at a Level of Service (LOS) E in 2008 under normal driving conditions.

#### **1.3.2. Traffic Congestion and Reliability**

Level of Service is defined as a qualitative measure describing the operational conditions within a traffic stream. It is generally described in terms of such factors as speed, travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. Level of Service (LOS) conditions range from LOS A (ideal) to LOS F (breakdown). Interstate 90 operates in a range of LOSs from C to E. Below is a description of the different LOSs:

LOS C	Speeds remain near free-flow speed, but freedom to maneuver is noticeably restricted. Minor incidents may still be absorbed, but the local deterioration in service will be substantial.
LOS D	Speed begins to decline slightly with increasing flows, and density increases more quickly. Freedom to maneuver is more noticeably limited, and the driver comfort level is significantly reduced. Even minor incidents can be expected to create queuing, because the traffic stream has little space to absorb disruptions.
LOS E	Unstable flow, with volume at capacity. Maneuverability within the traffic stream is extremely limited, and the driver comfort level is poor. The traffic stream has no ability to dissipate even the most minor disruption, and any incident can be expected to produce a serious breakdown with extensive queuing.

Current Average Daily Traffic counts are about 25,000 vehicles per day, with approximately 25% of the volume being freight trucks. The existing four-lane facility normally operates at a LOS C; however, it is common for it to operate at a LOS D during peak hours. Summer weekend volumes are approaching 50,000 vehicles per day. If capacity improvements are not made to the route, congestion will increase resulting in a higher probability for accidents and less safe driving conditions.

### **1.3.3. Freight Mobility**

Interstate 90 is the main east-west transportation corridor across Washington State and is vital to shipping goods across the Cascade Mountain Range. The section of I-90 within the limits of this project has unstable slope and avalanche locations. Closures related to landslides, avalanches, and avalanche control work average 72 hours per year. These closures last 15 minutes to several hours; several additional hours may pass before the backup of vehicles is cleared. A Value Engineering Team estimated that every 24 hours of closure costs the state's economy approximately \$16 million, with \$13 million related to freight. Based on 72 hours of closure, this results in a loss to freight of \$39 million per year.

### **1.3.4. Safety**

#### **1.3.4.1. Alignment**

Many of the existing horizontal curves do not meet the design standards for 70 mph, which is the current standard for rural interstates. The Stampede Pass I/C has substandard taper rates, and the eastbound on-ramp has a substandard acceleration lane length. The Cabin Creek I/C has substandard taper rates, and substandard acceleration and deceleration lane lengths at the on and off ramps. The turning radii at the intersections of the ramps and cross roads are also substandard.

Within the project limits, there are six Risk Locations listed in the WSDOT Accident Prevention Program. A Risk Location is a location that has a high probability of run-off-the-road accidents based on existing geometrics. The combined length of the Risk Locations within the project limits is 2.56 miles. The roadway and interchanges need to be reconstructed to WSDOT and FHWA design standards to reduce the chance of an accident within the project limits.

#### **1.3.4.2. Unstable Slopes**

Accidents due to incidences of rock outfall and rockslides happen without warning. Occasionally, the spontaneous release of rock debris has been catastrophic, causing closures, and the loss of property and life. The Geotechnical Services Branch of WSDOT has identified 13 areas within the project limits that have unstable slopes where rock outfall and rockslides occur. During recent construction projects, three of these areas have been stabilized by rock bolting and doweling. The remaining locations need to be addressed as part of this project.

#### **1.3.4.3. Structures**

The Stampede Pass and Cabin Creek Interchanges have inadequate vertical clearances. This results in the bridges being hit numerous times, causing damage to structures and vehicles. To avoid hitting the bridges, trucks with oversized loads are required to exit the highway at the off ramps and then re-enter the highway at the on ramps. The structures at both interchanges need to be replaced to eliminate the potential for accidents and damage to the structures.

### **1.4. PURPOSE OF THE PROPOSED ACTION**

The purpose of the proposed action is to:

- Reconstruct the roadway
- Improve operational efficiency
- Increase capacity
- Improve safety
- Protect and enhance wildlife corridors in a 15-mile stretch of I-90 between the communities of Hyak (MP 55) and Easton (MP 70) in Kittitas County, Washington

### **1.5. STUDY AREA**

The study area for the I-90 Snoqualmie Pass East project consists of the proposed footprint of the realigned and widened roadway from the Hyak Interchange (MP 55) to the W. Easton I/C (MP 70) in Kittitas County. The WSDOT is proposing to improve this 15-mile section of I-90 by widening it from four lanes to six lanes and eliminating many safety hazards.

Kittitas County is a rural county, with a total population of 33,362 and covering 2,297 square miles (according to 2000 Census data).

## **2. DESCRIPTION OF ALTERNATIVES**

### **2.1. NO ACTION ALTERNATIVE**

Under the No Action alternative, only preservation of the existing roadway, structures, interchanges, drainage and safety features would occur. The pavement would be rehabilitated periodically by overlaying with asphalt concrete pavement. These projects would become more frequent as increased traffic volumes are experienced. No improvements are proposed.



## 2.2. ALTERNATIVE 1

This alternative would realign the roadway in the vicinity of Gold Creek by constructing a 7,650-foot radius curve near Gold Creek and constructing a long bridge across the Gold Creek Valley. The large radius curve is required to provide horizontal stopping sight distance across the bridge. A new bridge would also be constructed across Rocky Run Creek.

A large culvert/pipe arch would be constructed at Wolfe Creek. Just east of Wolfe Creek, the alignment would enter a long tunnel (approximately two miles) that exits the hillside just east of Slide Curve. From there, a bridge would cross Resort Creek, and the alignment would follow and/or parallel the existing roadway. The alignment would straighten out the curve just west of Keechelus Dam, and the westbound lanes would cut into the hillside. The eastbound lanes would encroach on the shoreline of Keechelus Lake and have retaining walls from MP 60.6 to MP 60.7.

From MP 60.7 to MP 64.5, the alignment would follow the horizontal alignment of the existing roadway, except for straightening out the substandard curves. The Price Creek Snow Park would be expanded and constructed as a standard Safety Rest Area. East of the proposed Rest Area, the vertical profile would be elevated to allow for large culverts and bridges that would provide for more animal connectivity and wildlife habitat. Larger culverts/arches would be used at Price Creek and Noble Creek, a long bridge would be constructed in the Swamp Creek vicinity and a bridge would be constructed across Cedar Creek. The Stampede Pass I/C would be changed from an undercrossing to an overcrossing.

From MP 64.5 to MP 67, the westbound alignment would attempt to follow the existing roadway, except for straightening out the sharp curves. Flattening these curves would require cutting into the steep hillside. In some areas, the cuts would be made on 1:1 slopes and would require constructing snow retention nets. Median retaining walls would be required in some areas for the westbound lanes. A median (minimum width of 50 feet from fog stripe to fog stripe) would be provided for this total length of roadway. The eastbound lanes would be constructed on steep slopes, thereby requiring large embankments and/or retaining walls. A truck-climbing lane would be constructed on the eastbound roadway from MP 66 to MP 67.

From MP 67 to MP 68, the westbound alignment would be constructed to be parallel with the new eastbound alignment, with a 50-foot median between them. The profile would be elevated from the existing in one location to allow for the construction of a bridge, which would provide an animal crossing location.

From MP 68 to MP 70.3, the eastbound and westbound alignments would closely resemble the existing alignments except that two sharp curves would be straightened out. The eastbound county road bridge and Kachess River Bridge, along with the westbound Kachess River Bridge, would only need to be widened. The westbound county road bridge would need to be replaced.

## 2.3. ALTERNATIVE 2

This alternative would realign the roadway in the vicinity of Gold Creek by constructing a 7,650-foot radius curve near Gold Creek and constructing a long bridge across the Gold Creek Valley. The large radius curve is required to provide horizontal stopping sight distance across the bridge. A new bridge would also be constructed across Rocky Run Creek.

A large culvert/pipe arch would be constructed at Wolfe Creek. The alignment would cut into the steep hillside just west of the snow shed, and then a bridge would be constructed over Lake Keechelus in front of the avalanche area to allow avalanches to pass underneath. A tunnel approximately 0.6 miles long would be constructed through Slide Curve. From there, a bridge would cross Resort Creek, and the alignment would follow and/or parallel the existing roadway. The alignment would straighten out the curve just west of Keechelus Dam, and the westbound lanes would cut into the hillside. The eastbound lanes would encroach on the shoreline of Keechelus Lake and have retaining walls from MP 60.6 to MP 60.7.

From MP 60.7 to MP 64.5, the alignment would follow the horizontal alignment of the existing roadway except for straightening out the substandard curves. The Price Creek Snow Park would be eliminated. The vertical profile would be elevated to allow for large culverts and bridges that would provide for more animal connectivity and wildlife habitat. Larger culverts/arches would be used at Price Creek and Noble Creek, a long bridge would be constructed in the Swamp Creek vicinity and a bridge would be constructed across Cedar Creek. The Stampede Pass I/C would be changed from an undercrossing to an overcrossing. A standard Safety Rest Area would be constructed in the vicinity of the Crystal Springs Snow Park. The Stampede Pass road south of the interchange would also be reconstructed.

From MP 64.5 to MP 67, the westbound alignment would attempt to follow the existing roadway, except for straightening out the sharp curves. Flattening these curves would require cutting into the steep hillside. In some areas, the cuts would be made on 1:1 slopes and would require constructing snow retention nets. Median retaining walls would be required in some areas for the westbound lanes. A median (minimum width of 50 feet from fog stripe to fog stripe) would be provided for this total length of roadway. The eastbound lanes would be constructed on steep slopes, thereby requiring large embankments and/or retaining walls. A truck-climbing lane would be constructed on the eastbound roadway from MP 66 to MP 67.

From MP 67 to MP 68, the westbound alignment would be constructed to be parallel with the new eastbound alignment, with a 50-foot median between them. The profile would be elevated from the existing in one location to allow for the construction of a bridge, which would provide an animal crossing location.

From MP 68 to MP 70.3, the eastbound and westbound alignments would closely resemble the existing alignments, except that two sharp curves would be straightened out. The eastbound county road bridge and Kachess River Bridge, along with the westbound Kachess River Bridge, would only need to be widened. The westbound county road bridge would need to be replaced. A westbound truck-climbing lane would be constructed from MP 67 to MP 69.

## **2.4. ALTERNATIVE 3**

This alternative would have a posted speed limit of 60 mph. The eastbound alignment would be located between the existing eastbound and westbound alignments in the vicinity of Gold Creek, and the bridge across Gold Creek would be approximately twice as long as the existing bridge. East of the Gold Creek Valley, the alignment would closely resemble the existing alignment. The westbound alignment would closely resemble the existing alignment. The curve in the vicinity of Rocky Run Creek would be straightened out, and a new bridge would be constructed across Rocky Run Creek.

From Rocky Run Creek to the Keechelus Dam, the alignments would stay along the shoreline of Lake Keechelus. Several long bridges would be required for this alignment, and almost the entire eastbound roadway would be built on a bridge.

From MP 60.7 to MP 64.5, the alignment would follow the horizontal alignment of the existing roadway, except for straightening out the substandard curves. The Price Creek Snow Park would be expanded and constructed as a standard Safety Rest Area. East of the proposed Rest Area, the vertical profile would be elevated to allow for large culverts and bridges that would provide for more animal connectivity and wildlife habitat. Larger culverts/arches would be used at Price Creek and Noble Creek, a long bridge would be constructed in the Swamp Creek vicinity, and a bridge would be constructed across Cedar Creek. The Stampede Pass I/C would be changed from an undercrossing to an overcrossing.

From MP 64.5 to MP 67, the westbound alignment would attempt to follow the existing roadway, on the same alignment as Alternative 2.

From MP 67 to MP 70.3, the alignments would closely resemble the existing alignments, except that the sharp curves would be straightened out. The realignment of the westbound curve near the top of Easton Hill would provide a location to construct a cut-and-cover animal crossing. The eastbound profile would also be elevated in one area to allow for the construction of a bridge for animal passage. The eastbound county road bridge and Kachess River Bridge, along with the westbound Kachess River Bridge, would only need to be widened. The westbound county road bridge would need to be replaced. A westbound truck-climbing lane would be constructed from MP 67 to MP 69.

### 3. METHODOLOGY AND COORDINATION

#### 3.1. EVALUATION CRITERIA

This study complies with the guidelines outlined in the WSDOT *Environmental Procedures Manual*, Section 4-9, "Expertise Reports," and Section 5-1-1, "NEPA EIS Outline." Visual quality assessments were conducted in accordance with the United States Department of Transportation (USDOT), Federal Highway Administration (FHWA) *Visual Impact Assessment for Highway Projects*, 1988.

##### 3.1.1. Visual Quality

Visual quality is inherently subjective; therefore objective descriptions are used to quantify the visual assessment. Three criteria used to perform an evaluative appraisal of the landscape visual quality are: Vividness, intactness, and unity. Expert evaluation based on the three criteria have proven to be good predictors of the visual quality using the following sample equation:

$$\text{Visual Quality} = \frac{\text{Vividness} + \text{Intactness} + \text{Unity}}{3}$$

Each of the three criteria is independent; each is intended to evaluate one aspect of visual quality. Definitions of these terms are:

**Vividness:** The memorability of the visual impression received from contrasting landscape elements as they combine to form a striking and distinctive visual pattern.

**Intactness:** The integrity of visual order in the natural and man-built landscape, and the extent to which the landscape is free from visual encroachment.

**Unity:** The degree to which the visual resources of the landscape join together to form a coherent, harmonious visual pattern. Unity refers to the compositional harmony or inter-compatibility between landscape elements.

### **3.1.2. Visual Quality Evaluation**

#### **3.1.2.1. Overview**

A visual quality evaluation was conducted on I-90 between mile post (MP) 55.10 and MP 70.1 for the existing and proposed roadway. Pictures were taken and rating sheets were filled out in October 2001. Data from this evaluation can be found in Appendix A.

#### **3.1.2.2. Rating Scale**

##### **Vividness ratings:**

**Very High (Rating value = 7):** The visual impression received is highly memorable, as contrasting landscape elements combine to form distinctive visual patterns. Strongly defined landscape or landforms are noted, including mountains, large bodies of water, distinctive patterns, colors, and textures of vegetation or significant manmade structures.

**Medium Rating (Rating value = 4):** The visual impression received is moderately memorable, with some distinctive patterns; moderately defined landscape or landforms are present, including low rolling hills, and smaller water bodies. Vegetation patterns, colors, and textures are less visible. Some significant manmade structures may be present.

**Very Low Rating (Rating value = 0):** The visual impression received is of low memorability. Little visual pattern is formed because landscape elements do not combine to form a striking and distinctive pattern. Homogeneous landforms or landscapes and small bodies of water may be present. Vegetation patterns, colors, and textures are not noticeable and manmade structures are insignificant or not memorable.

##### **Intactness Ratings:**

**Very High (Rating value = 7):** There is a high visual integrity between the natural and manmade landscape to the extent that the landscape is free from visual encroachment. Visual integrity occurs where natural areas and manmade landscapes blend into the surrounding character and create no visual discontinuity between the natural and manmade elements. Natural and manmade patterns are not disturbed and they maintain visual order.

**Medium (Rating value = 4):** There is an average visual integrity between the natural and manmade landscape. Some visual encroachment on to the landscape is present and it lacks visual order. There is some disruption of the natural and manmade patterns.

**Very Low (Rating value = 0):** There is low visual integrity between the natural and manmade landscape features. Visual encroachment onto the landscape is very apparent. The pattern of elements is disrupted and the integrity of the natural visual order is lost.

## Unity Ratings:

**Very High (Rating value = 7):** The visual elements of the landscape join together to form a highly coherent, harmonious visual pattern. Manmade and natural elements blend together.

**Medium (Rating value = 4):** The visual elements of the landscape join to form a moderately coherent, harmonious visual pattern. Manmade elements blend with natural elements, but the visual order is disrupted.

**Very Low (Rating value = 0):** Visual resources do not join together to form a coherent, harmonious visual pattern. Manmade elements do not have a visual relationship to natural landforms or land cover patterns and visual order is lacking.

## 3.2. COORDINATION WITH AGENCIES AND JURISDICTIONS

The project corridor passes through USDA Forest Service managed land. See Appendix E. WSDOT is coordinating with the Forest Service on Architectural Design Standards for the I-90 corridor. In addition, WSDOT coordinates with the Forest Service on plant selection and location, and the collection of native seeds and salvage of native vegetation for the purpose of roadside revegetation and restoration within the project limits.

WSDOT is also coordinating with the Mountains to Sound Greenway Trust so that the visual elements of the project will complement this section of I-90's status as a National Scenic Byway.

Under the National Scenic Byways Program, the U.S. Secretary of Transportation recognizes certain roads as National Scenic Byways or All-American Roads based on their archaeological, cultural, historic, natural, recreational, and scenic qualities. There are 72 such designated byways in 32 states. The Federal Highway Administration promotes the collection as America's Byways.

America's Byways are a distinctive collection of American roads, their stories and treasured places. They are roads to the heart and soul of America. Byways are exclusive because of their outstanding qualities, not because byways are confined to a select group of people.

Managing the intrinsic qualities that shape the byway's story and interpreting the story are equally important in improving the quality of the visitors' experience. The National Scenic Byways Program is founded upon the strength of the leaders for individual byways. It is a voluntary, grassroots program. It recognizes and supports outstanding roads. It provides resources to help manage the intrinsic qualities within the broader byway corridor to be treasured and shared. Perhaps one of the underlying principles for the program has been articulated best by the byway leader who said, 'the program is about recognition, not regulation.'

To be designated as a National Scenic Byway, a road must possess at least one of the six intrinsic qualities. The significance of the features contributing to the distinctive

characteristics of the corridor's intrinsic qualities must be recognized throughout the multi-state region.<sup>2</sup>

The National Scenic Byway designation for the Mountains to Sound Greenway is based upon the route's "scenic character, intrinsic qualities, recreational opportunities, and general environmental experiences that exist along this heavily traveled route."<sup>3</sup> Because the designation is based upon scenic character, intrinsic qualities, and environmental experiences, any changes in the corridor must be careful to retain those qualities along the I-90 corridor. A primary goal of the Mountains to Sound Greenway Trust is to retain or add visual separation between eastbound and westbound lanes of traffic.<sup>4</sup>

## 4. AFFECTED ENVIRONMENT

The Mountains to Sound Greenway begins at Thorp and runs to Seattle along I-90. The study area begins just east of Snoqualmie Pass in the Cascade mountain range. I-90 runs in a north-south direction between the eastern shore of Lake Keechelus and Keechelus Ridge, which rises approximately 2500 feet above the roadway elevation of 2700 feet above sea level, on average. The principle land manager through the project corridor is the USDA Forest Service.

One of the predominant views in the study area is of Lake Keechelus. There are also numerous views of conifer forests with mountains in the background. There are potential views of Kachess Lake valley. The Silver fir (*Abies amabilis*) community near Hyak transitions into a Western Hemlock (*Tsuga heterophylla*) community from near MP 61. At the top of Easton Hill (MP 68), the plants transition into a Grand fir (*Abies grandis*) community until the project end at MP 70.3. These communities represent the "climax" species for these locations. Douglas fir (*Pseudotsuga menziesii*), an early successional species, currently dominates existing vegetation.

The project area runs through public lands that are managed for multiple objectives, including habitat, ecological connectivity, and recreation. Recent land transfers have removed Public Land Survey Sections from logging use to Forest Service ownership with conservation easements, thus protecting viewsheds within the project corridor for the future.

The Washington State Department of Transportation's *Roadside Classification Plan* classifies the entire project area as "Forest." This classification is characterized as predominantly natural or naturalized forest, with natural-appearing landforms and native trees or understory vegetation. The zone near the roadway edge may be meadow.

### 4.1. LANDSCAPE UNITS

The study area was divided into four Landscape Units based on topography and viewsheds that have similar characteristics. These Landscape Units do not directly correspond to the five Sections that the project has been divided for engineering purposes. In the figures illustrating the Landscape Units, these Sections are also shown.

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<sup>2</sup> [http://www.byways.org/travel/byway.html?CX\\_BYWAY=2228&CX\\_STATE=WA](http://www.byways.org/travel/byway.html?CX_BYWAY=2228&CX_STATE=WA)

<sup>3</sup> Mountains to Sound Greenway Implementation Plan, Volume I. P 1-6. 1998

<sup>4</sup> Mountains to Sound Greenway Implementation Plan, Volume III. P 6. 1998

<sup>5</sup> Ibid.

The four Landscape Units are shown below and in Figure 1:

- Landscape Unit 1 – Mile Post 55.10 to Mile Post 60.75
- Landscape Unit 2 – Mile Post 60.75 to Mile Post 64.41
- Landscape Unit 3 – Mile Post 64.41 to Mile Post 67.46
- Landscape Unit 4 – Mile Post 67.46 to Mile Post 70.30

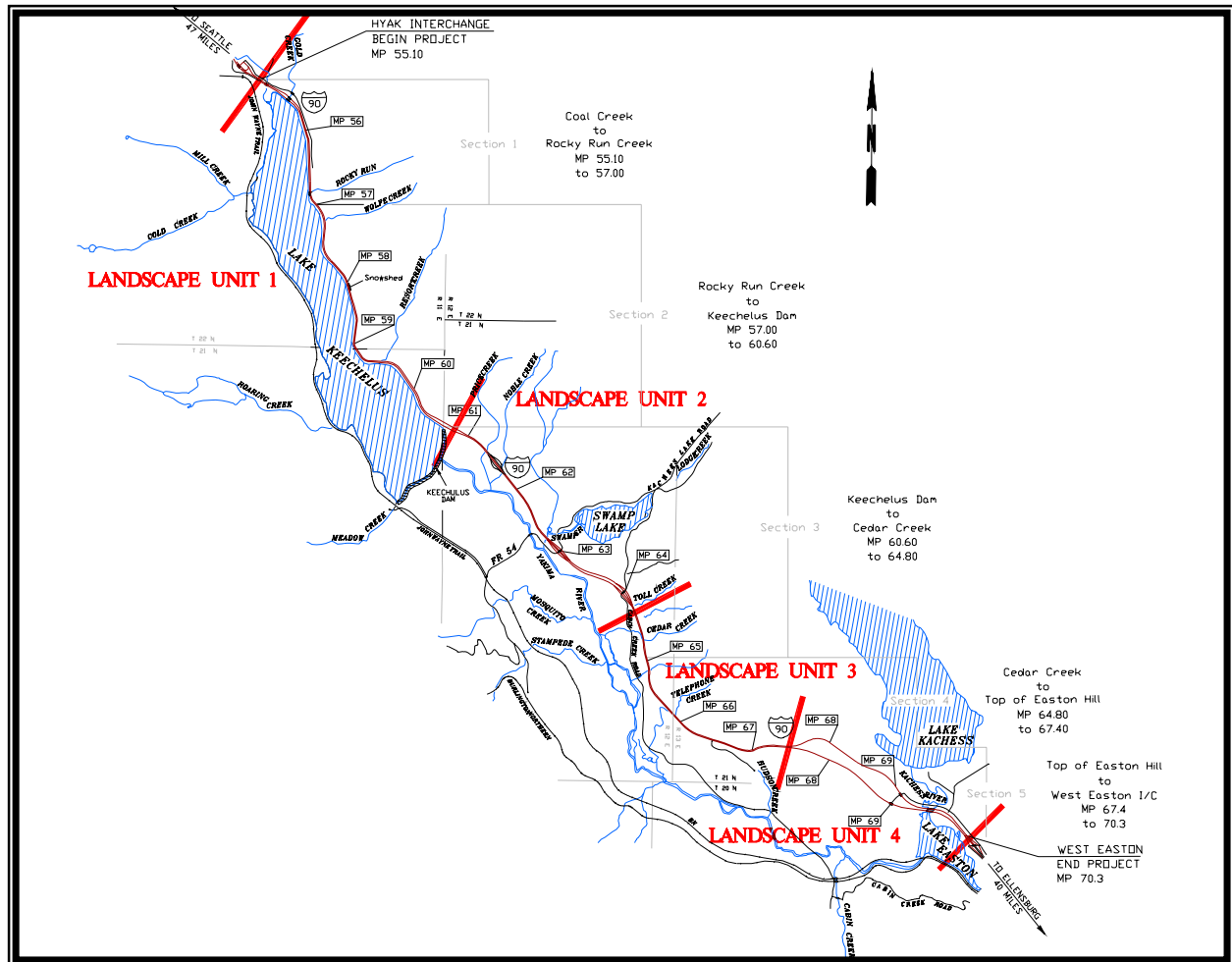
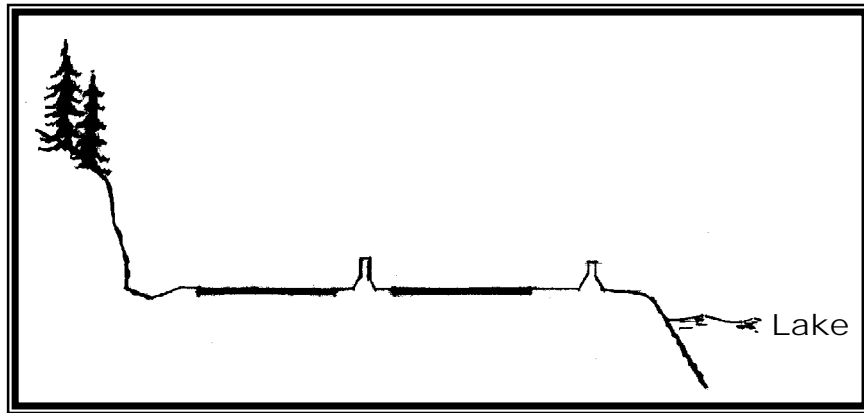


Figure 1. Landscape Units within the project limits

#### 4.1.1. Landscape Unit 1

Landscape Unit 1 runs from the western project limits along the entire eastern shore of Lake Keechelus. The view from the road is of a sharp rise to the east, the lake, and distant mountains. The dominant landscape character in this unit is openness. Views across the lake and up Gold Creek Valley draw the eye away from the road. The road follows the sinuous curve of the shoreline. The traveler can see Gold Creek as it flows into the lake at the northern end of the unit. This is the only Landscape Unit with extensive views toward the road. Typical topography is seen in Figure 2.



**Figure 2. Typical topography in Landscape Unit 1**

The John Wayne Pioneer Trail, a part of Iron Horse State Park, runs along the western shore of the lake and has views toward I-90. There are brief views of the road from Forest Service Road 4832, which runs parallel and above I-90 to the east. Currently, concrete barriers form the median between the two lanes of traffic. Figure 3 shows the topography at Mile Post 58.

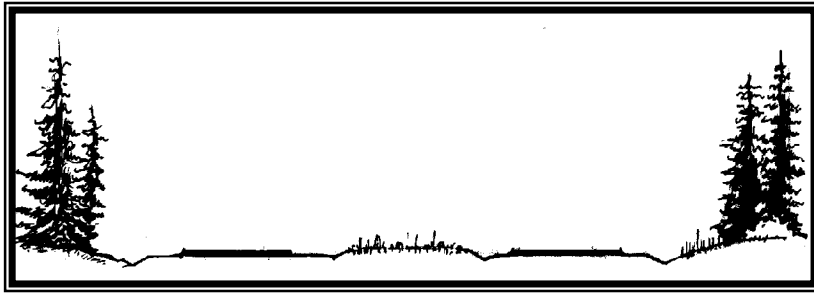


**Figure 3. Topography at Mile Post 58 - the snow shed**

#### **4.1.2. Landscape Unit 2**

Landscape Unit 2 is defined by broad, relatively flat topography as the road runs along the eastern side of the narrow valley formed by the Yakima River. Here the landscape allows a wide median between the eastbound and westbound lanes of traffic. Typical topography is shown in Figure 4.





**Figure 4. Typical topography in Landscape Unit 2**

The dominant landscape characteristic in Landscape Unit 2 is of a forested foreground. The road here feels safer because of the wide median and the forested enclosure on both sides of the roadway.

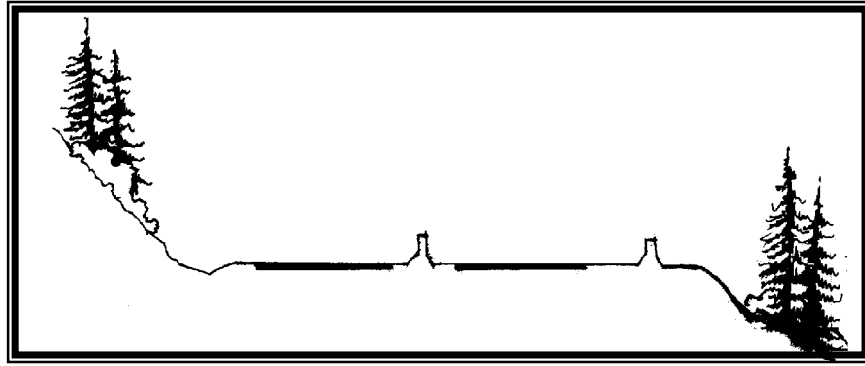
Forest road 4823 runs briefly along the west side of I-90 south of the Cabin Creek interchange. Currently, this road serves a few homes and recreational facilities. Road 4823 dead-ends at the Yakima River. The Douglas fir dominated forest encloses the road and reveals mountain views ahead, as shown in Figure 5.



**Figure 5. Typical topography along Landscape Unit 2**

#### **4.1.3. Landscape Unit 3**

Landscape Unit 3 runs along the southwestern flank of Amabilis Mountain before it descends to the Yakima River. Its topography is similar to that of Landscape Unit 1 with a rise to the northeast and a valley to the southwest. Figure 6 shows topography typical of this landscape unit as seen from the westbound lanes.



**Figure 6. Typical topography in Landscape Unit 3**

The character of Landscape Unit 3 is mixed. There are steep cut rock faces and forested foreground views. The road curves sinuously with only a Jersey barrier separating the directions of traffic. In the middle ground there are transmission lines.

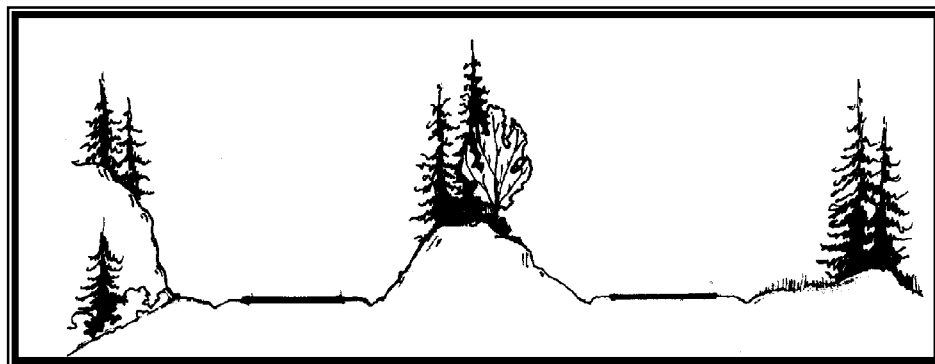
Electrical transmission lines run parallel to the road to the southwest. These lines lie approximately 400 feet from I-90. The westbound view from the roadway, typical of this landscape unit is seen in Figure 7.



**Figure 7. Topography in Landscape Unit 3**

#### **4.1.4. Landscape Unit 4**

Landscape Unit 4 runs along a plateau south of Lake Kachess. There is room for a wide median that forms a hill between the two directions of traffic. This is shown in Figure 8.



**Figure 8. Topography typical of Landscape Unit 4**

Landscape Unit 4 has a forested character. There is a secure feeling driving through this section because of the wide median and the enclosure of the forest on both sides of the roadway. Mountain views are seen straight ahead, in the distance.

This Landscape Unit forms the southeastern entry into the project area and is the eastern entry into the forests of western Washington. In this landscape unit the Grand fir plant association is the climax plant community. Figure 9 shows a typical view of this landscape unit.



**Figure 9. View of Eastbound I-90 in Landscape Unit 4**

## **4.2. KEY VIEWS**

### **4.2.1. View Locations**

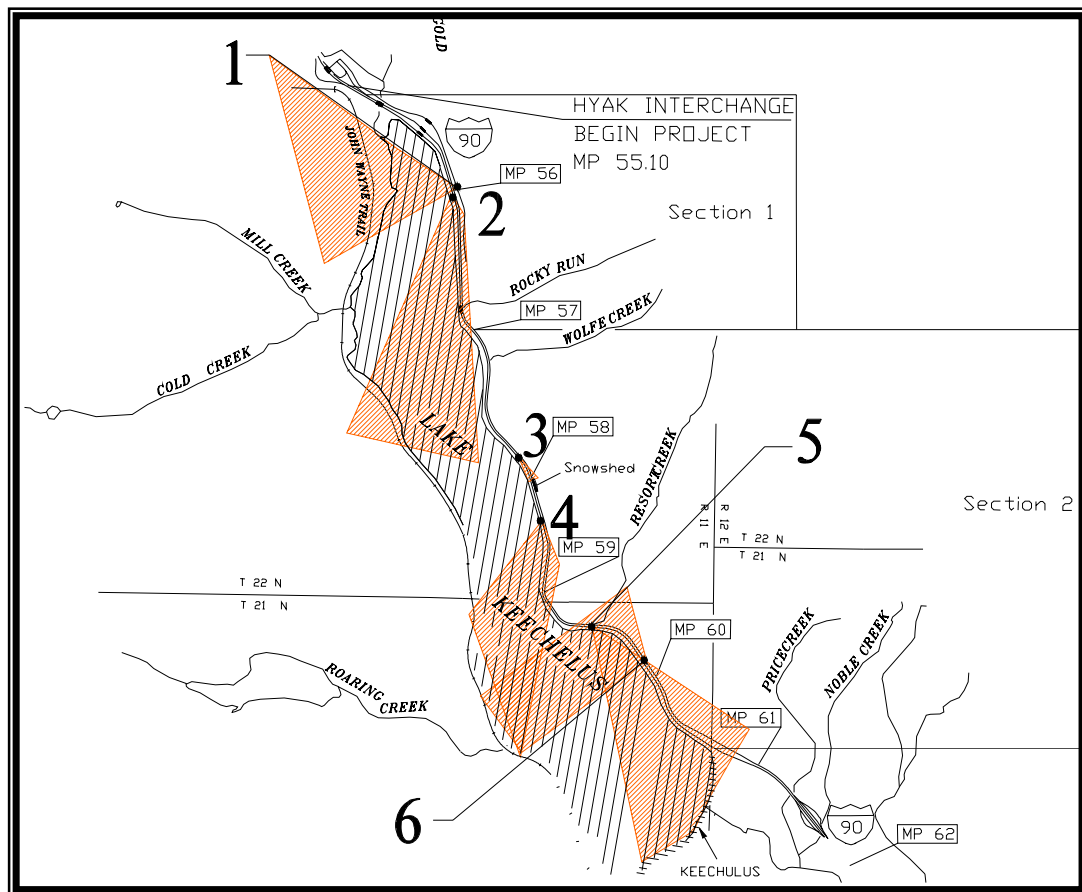
Views within each of the landscape units were selected to examine the visual conditions of the existing project corridor and to assess the visual quality of the roadway. The locations of these key views have been established to optimally analyze the change in visual quality between current and proposed conditions. For example, views were selected where the removal of vegetation could affect the view from or toward the road, or where the realignment of the road has the potential to change views. Other criteria that may be used for selecting a Key View location include visibility of the project area from the viewpoint, frequency and duration of the public viewing time, and the similarity of the view to a larger section of the project.

Many of the Key Views, and views in general along this corridor, are of harvested slopes. Much of the land within the viewshed of the Mountains to Sound Greenway has been bought by or traded to the US Forest Service. Other parcels have been put into conservation easements to preserve or enhance views. The harvested slopes have been planted and will mature and provide enhanced views within the next twenty years. The analysis of views for this study rates these harvested slopes as they are now, but ratings for vividness of vegetation, intactness, and unity are expected to improve as the forests mature.

### **4.2.2. Landscape Unit 1 – Views From the Road**

The map in Figure 10 shows the locations of views from the road. These views were chosen based upon their representation of the various, typical views along the lake. In addition, the views from these locations could depict probable changes in the view from the road caused by project alternatives.

Key views are numbered north to south along the project corridor. Because of Lake Keechelus, views in this landscape unit are broad and the background view is typically miles away from the viewer.



**Figure 10. Key Views in Landscape Unit 1**

The highway curves sinuously along the lakeshore with views of Lake Keechelus and forested slopes. Views in Landscape Unit 1 vary with the seasons and depend upon depth of snow pack and spring runoff. In 2001, when these photos were taken, the lake elevation was at a 50 year low. Average change in elevation of the lake is 80 feet. When the lake is high, all the stumps are covered and water is visually very close to the highway. High lake levels increase the scenic quality of Landscape Unit 1.

Because of the rapid change in lake elevation annually, vegetation does not become established on the fill slopes. This situation is determined by water needs downstream in the Yakima River watershed and is not expected to change.

#### **4.2.2.1. Key View 1 – MP 56, Westbound**

Key View 1 looks west, toward the mountains beyond the lake and north, toward the ski slopes at Snoqualmie Summit. The existing view, shown in Figure 11 includes the chain off lanes and lighting provided for that activity. The view is toward the northwest.



**Figure 11. Key view 1 - West bound MP 56**

Grasses in the median dominate the foreground. Vehicles traveling eastbound and stopping in the chain off lanes, are the principle visual elements in the middleground. In the background, second-growth Douglas fir forests cover the mountains to the west and cleared areas for ski runs are seen on the forested slopes to the northwest. Bryant Peak can be seen in the distant background on a clear day.

With its view of mountains, ski slopes, and the lake, this area is memorable, especially during the ski season with its lighted slopes for night skiing. This key view has an average degree of vividness. This view shows that there is some development and that development encroaches to a slight degree. Intactness is rated as moderate. The highway and the cleared areas of the ski slopes interrupt the visual unity of the scene. Overall unity is rated as average.

#### **4.2.2.2. Key View 2 – MP 56 Eastbound**

Key View 2 has a foreground view of the road. Middleground views are of cottonwood and Douglas fir trees, shrubs, grasses, and near lake or lakebed views. Background views are of the lake, the opposite shore, distant hills, and the mountains beyond. This is a popular place for trucks and visitors to stop because of the shoulder width and because it is the first opportunity to view the lake and the only place to stop along its eastern shore. This view can be seen in Figure 12.





**Figure 12. Key View 2 - Eastbound, MP 56**

The view is memorable and has a high degree of vividness. The road is the principle development within the viewshed. Beyond the road, the view is relatively intact. Its intactness rating is moderately high. This key view has a moderately high degree of unity.

#### **4.2.2.3. Key View 3 – MP 57.5 Eastbound**

Existing views, seen in Figure 13, are of the snow shed over the westbound lanes of traffic and of trees between the lake and the highway. Vegetation consists of grasses on the right-hand shoulder. There are Douglas firs and native cottonwoods between the road and the lakeshore. Trees, consisting of Douglas firs and cottonwoods are growing on top of the snow shed and on the slope above the steep rock cut along the highway to the left.

The foreground view is of the roadway and the median Jersey barrier. Middleground views are of the trees between the road and the lakeshore. Background views are of the snow shed and hills beyond.



**Figure 13. Key View 3 - Eastbound MP 57.5**

This view too is somewhat memorable because of the snow shed. It has an average vividness rating because of the lack of water in the view. The road and the snow shed are the principle developments within the viewshed. Beyond the road, the view is relatively intact therefore; this view has a moderately high intactness rating. This key view has an average unity rating because of the steep, unvegetated slopes to the left of the highway.

#### **4.2.2.4. Key View 4 – MP 58.5 Eastbound**

Existing views at this key viewpoint are of rocks rising sharply on the left, the road seeming to point directly into the mountainside, and of the lake to the right. This is a dramatic view because of the contrast in textures from rock and vegetation to water. Foreground views are of the highway, the rock, and the Jersey barriers in the median and along the right shoulder. Douglas fir trees dominate vegetation here and provide some screening between the highway and the lake. This view can be seen in Figure 14.



**Figure 14. Key View 4 - Eastbound MP 58.5**

Because of the difference in texture, the lake and mountain views, this scene has a high vividness rating. The only development in the scene is the highway; therefore this key view has a high intactness rating. It also has a high unity rating.

#### **4.2.2.5. Key View 5 – MP 59.35 Eastbound**

The southern end of Lake Keechelus dominates this view. The road and Jersey barrier occupy the foreground. The middleground is of grasses between the road and the lake and of cottonwoods and Douglas firs on the left side of the road. The dam can be seen in the background as well as the mountains in the far distance. Beyond the dam, the Yakima River flows south to eventually join the Columbia River far beyond the project limits. Figure 15 shows Key View 5.



**Figure 15. Key View 5 - Eastbound MP 59.35**

This view has a moderately high to high degree of vividness. The lake makes this scene memorable. The road and the dam are the two obviously manmade elements in this scene. While the dam represents development, its low profile relative to the surrounding landscape allows it to

blend. This view is moderately high to highly intact. Its unity rating is moderately high because the Jersey barriers abruptly separate the viewer from the scene.

#### **4.2.2.6. Key View 6 – MP 59.85 Westbound**

This Key View looks north along Lake Keechelus on westbound I-90. The lake is to the left and the southern side of Slide Curve is directly ahead. The foreground is occupied by the highway and by vegetation to the right. Native grasses occupy the road shoulder and young Douglas fir trees and cottonwoods are growing on the eastern slope. The lake, highway, and vegetation on the right occupy the middleground. Slide Curve and the mountains to the northwest of Lake Keechelus are in the background. This view can be seen in Figure 16.



**Figure 16. Key View 6 - MP 59.85 Westbound**

This view has contrasting topography: mountains, hills, and the lake; but the contrasts are not dramatic. The view of the lake enhances its vividness rating making it moderately high. Development is limited to the highway, transmission lines on the mountain across the lake, and distant logging roads on the mountains. Its intactness rating is moderately high. The overall unity in this scene is high because the road emphasizes and enhances the curve of the shoreline.

#### **4.2.3. Landscape Unit 1 – Key Views Toward the Road**

The Key Views toward I-90 in Landscape Unit 1 are from the Snoqualmie Summit ski area, the residences on the slopes above Hyak, the southern boat ramp for the lake, and from the John Wayne Trail. These views were chosen because of the number of potential viewers and the duration of their views. Other views from Forest Service Roads were considered but the limited number of travelers and the narrow view windows limited their usefulness in this study. These viewpoints can be seen in Appendix B. Figure 17 shows the key views toward the road used in this study.



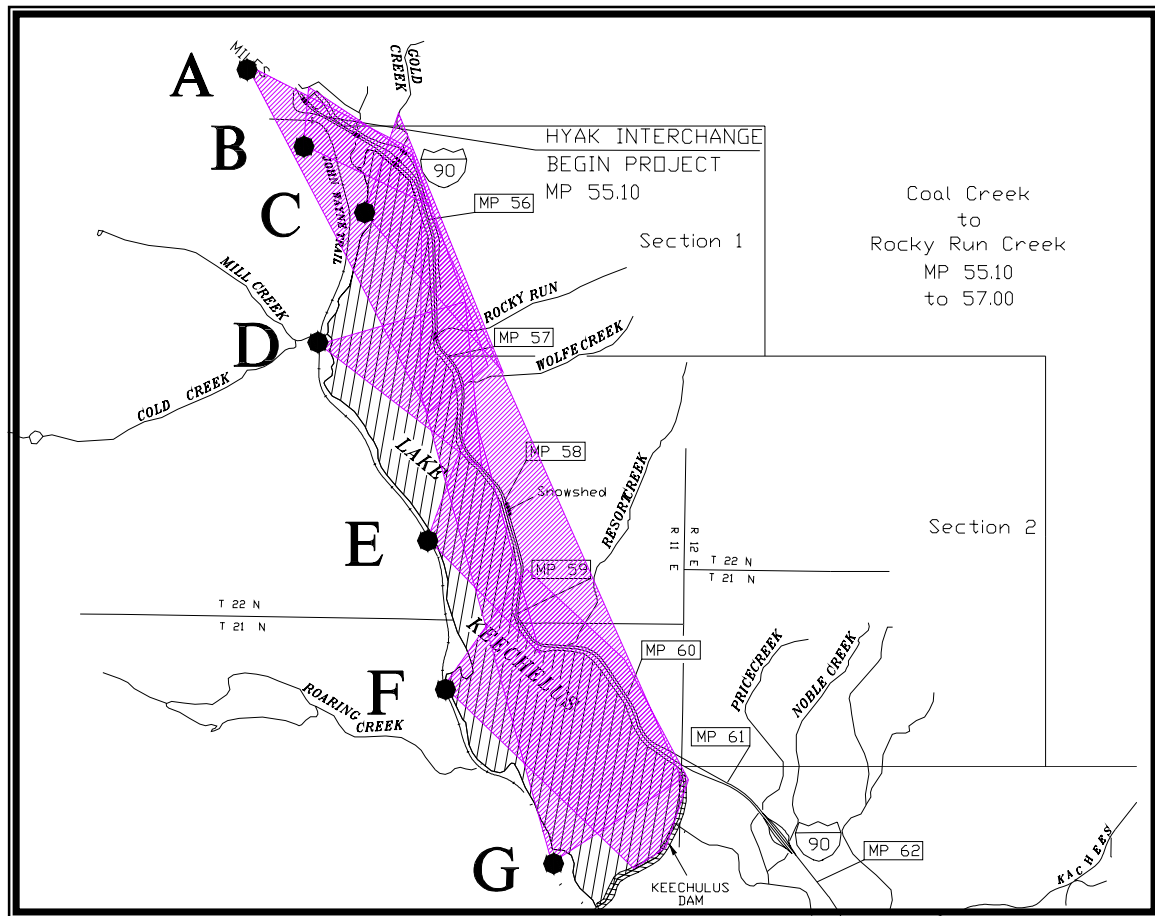


Figure 17. Landscape Unit 1 - Views Toward the Road

#### 4.2.3.1. Key View A – Snoqualmie Summit Ski Area – Ripcord Run

Visitors and employees using the ski lifts and ski runs at Snoqualmie Summit and Hyak have views of I-90 ranging from the immediate area of Hyak to distant views of the highway along the lakeshore. Figure 18 shows the near view of Hyak from 100 feet below and to the north of the Ripcord chair lift. The eye catches on the middleground vegetation and then travels to the peaks beyond. The highway in the center of the view is noticeable but does not dominate the view.



**Figure 18. Key View A - I-90 from ski slopes**

This is a memorable view with the mountains in the background, trees in the middleground and snow-covered slopes in the foreground. It has a high vividness rating. There is development, but it does not encroach upon the scene. The overall unity is high. Distance from development enhances the visual quality. The road is seen as a narrow line in the center of the view.

#### **4.2.3.2. Key View B – Residences at Hyak**

There are many homes and vacation condos and cabins on the slopes above Hyak. This area also has Nordic ski trails. Residents and visitors to this area have views of the Hyak interchange and the northern end of the project corridor. Figure 19 is typical of the views of the highway from the slopes above Hyak.



**Figure 19. Key View B from housing area above Hyak**

The mountains in the background draw the eye. The highway and the development at Hyak along with the chair lift form the middleground view. The foreground consists of a house, its yard, and Douglas fir trees. The mountain in the background is covered in a second-growth Douglas fir plant community.

This key view has an average vividness rating because it has a mountain backdrop but lacks a view of the lake. This is the most developed area within view of the project. It has an intactness rating between average and moderate. Its unity rating is moderately high.

The sand pile at the WSDOT maintenance yard is visible in the middleground.

#### **4.2.3.3. Key View C – Boat Ramp**

This key view was chosen to demonstrate views of the roadway by people launching boats onto the lake. Lake Keechelus is open for fishing year round – though people who have fished the lake say the fishing is not good. Foreground views are of the boat ramp and potentially the lake in a higher water year.



**Figure 20. Key View C - Boat ramp to Lake Keechelus**

As seen in Figure 20, middleground views are of the lake with the roadway and the mountains in the background. The road can be seen as a fine line between the lake and the base of the mountains. Trucks and cars are visible as they move along the road. The eye focuses on the lake and the mountains.

This scene is made up of natural elements: a foreground view of a large body of water (when the lake is high enough to launch a boat), tree covered mountains, and distant peaks. It has a high vividness rating. The road and the utility corridor are the only notable features of development. It has a high intactness rating. It also has a high unity rating.

#### **4.2.3.4. Key View D – John Wayne Trail at Cold Creek**

This viewpoint is adjacent to a picnic area with pit toilets on the John Wayne Trail, which follows the western shoreline of Lake Keechelus. It is a convenient area for people to stop. The view from this point, seen in Figure 21, is very natural, with the creek and native vegetation in the foreground. This year there are stumps in the middleground – these would normally be submerged under the lake surface. In the background are hills and mountains covered with Douglas firs. I-90 runs along the opposite lake shore. In this location the highway is partially screened by trees.

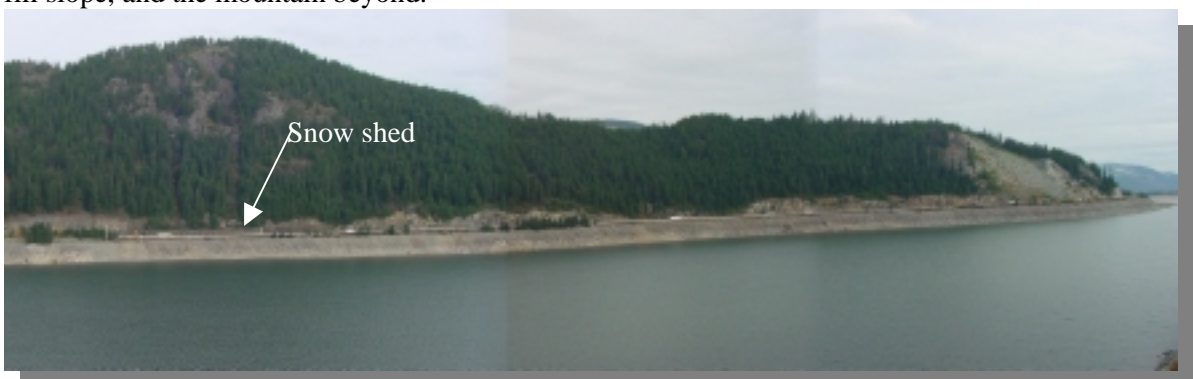


**Figure 21. Key View D - John Wayne Trail at Cold Creek**

Key View D, taken from a recreational trail has a high vividness rating. The lake and the mountains beyond combine to make it a memorable scene. Development is limited to the narrow band of the highway and trees obscure it in several places. Its intactness rating is moderately high to high. Its unity score is high – the only detractors are the obvious, regenerating clear-cut logging areas. These are filling in and will not be as visible in a few years.

#### **4.2.3.5. Key View E – John Wayne Trail across from I-90 snow shed**

This key view is directly across Lake Keechelus from the snow shed on I-90. Figure 22 shows the avalanche chutes that lead to the snow shed. When seen from this perspective, the need for protection of drivers from the active chutes is clear. The foreground of the scene is the near shore water of the lake. Middleground is also of the lake. The background view is of the roadway, its fill slope, and the mountain beyond.



**Figure 22. Key View E - Snow shed from John Wayne Trail**

The water and the mountain in this view contrast with one another and make this a scene with a moderately high to high vividness rating. The road is the only development in the view. The unvegetated cuts in the rock to provide space for the road make it more visible from this distance



than in other sections of the project. The scene has a moderately high intactness rating. The road cut and the visible disruption in the line of the slope lowers the unity rating to moderately high.

#### **4.2.3.6. Key View F – John Wayne Trail view of “Slide Curve”**

Views from the John Wayne trail are sweeping and dramatic, as seen in Figure 23. This view of Slide Curve to the left of center in the background shows the constant erosion that prevents vegetation from becoming established on the slope. Additional background views are of distant peaks. The foreground is occupied by vegetation along, and below the trail. The middleground is occupied by the lakeshore.



**Figure 23. Key View F - John Wayne Trail view of Slide Curve**

This view of the curving lakeshore on the east is dramatic. The mountains in the background and the lake in the foreground enhance that drama. This view has a high vividness rating. The highway is seen in the background as a narrow band at the base of the mountains. This scene has a high intactness rating. Visual unity in this view is also high.

#### **4.2.3.7. Key View G – John Wayne Trail view from south end of lake**

This is the first time the viewer traveling north on the John Wayne Trail sees Lake Keechelus. Native shrubs and Douglas fir trees make up the foreground view. The lake is in the middleground; mountains, the highway and the dam make up the background view. The road is visible only as a line, principally denoted by the fill slope and rock cuts necessary for the roadway width.



**Figure 24. Key View G - John Wayne Trail view from the south end of Lake Keechelus**

The combination of foreground vegetation, the lake and the long sinuous shoreline backed by forest-covered mountains is memorable. This scene has a high vividness rating. Development in this view fades into the background giving this scene a high intactness rating. Each element in the view blends together for a high unity score.

#### **4.2.4. Landscape Unit 2**

The transition between Landscape Unit 1 and Landscape Unit 2 occurs at MP 60.75 where the westbound traveler is first able to see the lake, and the eastbound traveler leaves the lake view. The topography and the experience of the traveler change at this point. For eastbound traffic, more open views of the lake give way to views of the highway enclosed by trees. The mountains still rise to the northeast (right side of the road for the westbound traveler) but the land to the southwest flattens out somewhat. There is room for a wider median in this Landscape Unit. Distant views are only seen straight ahead. There are no views toward the road in this Landscape Unit. The only possible views are from distant, seldom used logging roads. The Key Views for this Landscape Unit are shown in Figure 25. Note the difference in the viewshed shapes between Landscape Unit 1 and Landscape Unit 2. The views narrow down in Landscape Unit 2.

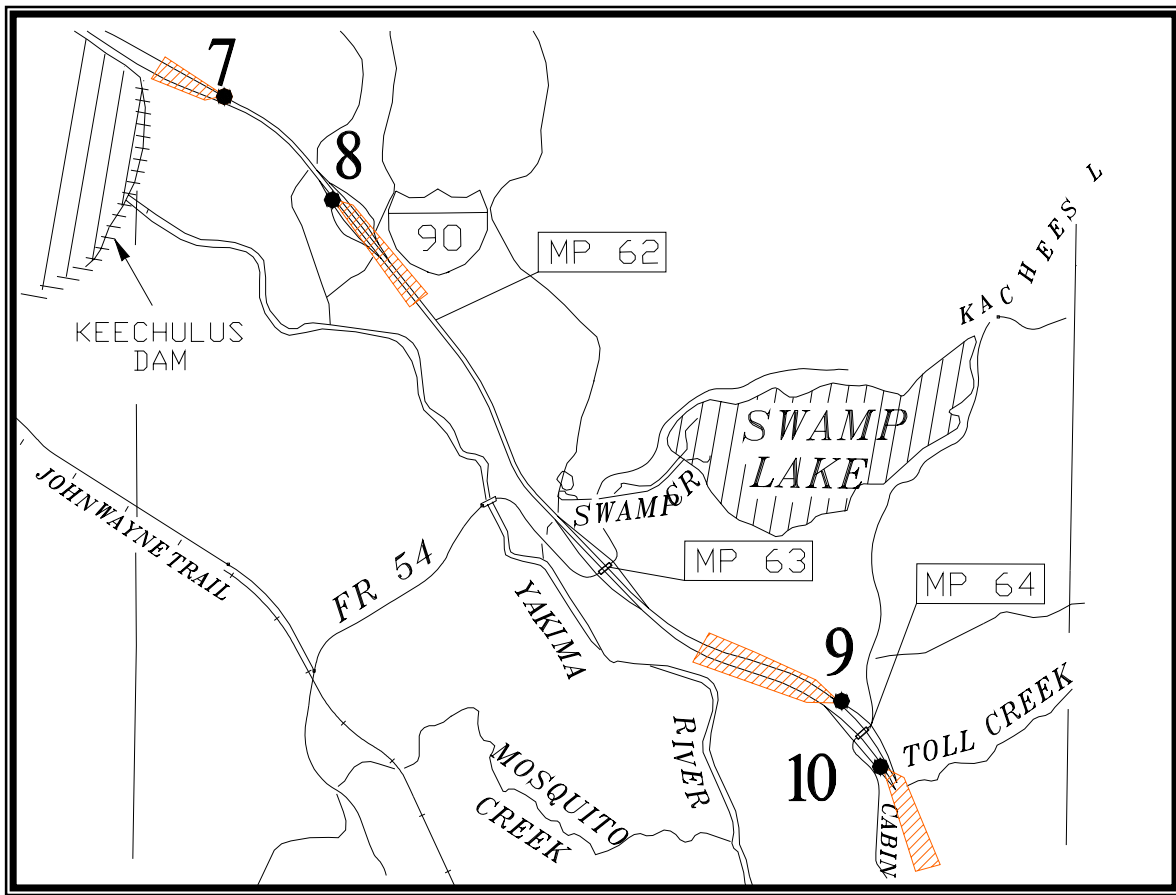


Figure 25. Key Views in Landscape Unit 2

#### 4.2.4.1. Key View 7 – MP 60.75 Westbound

Key View 7 is the transition from Landscape Unit 2 to Landscape Unit 1 when traveling westbound on I-90 through the project corridor. At this point the traveler leaves the enclosure of the trees and can view long distances across the lake. This transition, seen in Figure 26, is made more dramatic by the rock cuts on either side of both the eastbound and westbound lanes. Native grasses grow in the foreground. Shrubs and Douglas firs grow in the middleground. The rock cuts are also in the middleground view. Tree covered mountains form the background view.



Figure 26. Key View 7 - Westbound MP 60.75

The landform in this view has a high vividness rating because of the constriction of the road by the rock walls on either side, which then open to a wide expanse. Vegetation is second growth of a medium to young age class. Overall, the vividness rating of this scene rates average because of the lack of water in the view. The road and the rock cuts are the only signs of development or encroachment. It has a moderately high intactness rating. The overall unity of the view is moderately high.

#### **4.2.4.2. Key View 8 – MP 61.75 – Price Creek Snow Park Vicinity - Eastbound**

This Key View illustrates the sense of enclosure provided by second growth forest along the roadside. Douglas firs dominate the forest with some Black Cottowoods interspersed in the middleground. Trees appear to be 50 years or younger in age. Grasses form the foreground on the road shoulder and the median. The topography in this landscape unit allows for a medium width median.



**Figure 28. Key View 8 - MP 61.75 Eastbound**

This view, shown in Figure 28, has an average vividness rating. There are no sharp contrasts between landforms, materials, or water. The road is the only sign of development or encroachment. The intactness rating is moderately high to high. The trees and grass on both sides of the road provide a moderately high degree of unity in this view.

#### **4.2.4.3. Key View 9 – MP 63.9 Westbound**

Key View 9, seen in Figure 29, shows the westbound lanes with trees filling the median and enclosing the lanes on the right. This enclosure frames the view to the mountains in the background. Grasses, trees, and light standards form the foreground and well as the middleground views.



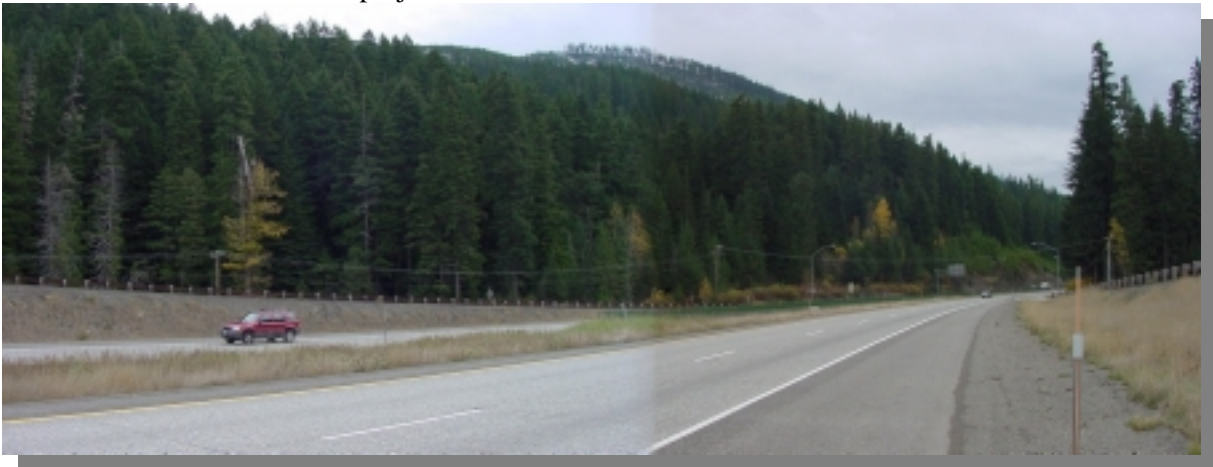


**Figure 29. Key View 9 - Westbound at end of Cabin Creek Road onramp**

This view has a balance of landform, vegetation and manmade elements. It has a slightly above average vividness rating. There is some development, in the form of the road and lighting, but it encroaches only slightly. The intactness rating is moderately high. The overall unity of the view is moderately high.

#### **4.2.4.4. Key View 10 – MP 64.1 Cabin Creek Road vicinity - Eastbound**

Key View 10 has grass and the roadway in the foreground; the ramps, power lines, and Douglas firs and cottonwoods in the middleground; and logged mountains and sky in the background. There is a stand of mature Douglas firs, seen on the right hand side of Figure 30 just south of the eastbound onramp from Cabin Creek Road. These trees appear to be over 50 years old and are some of the oldest trees in the project corridor.

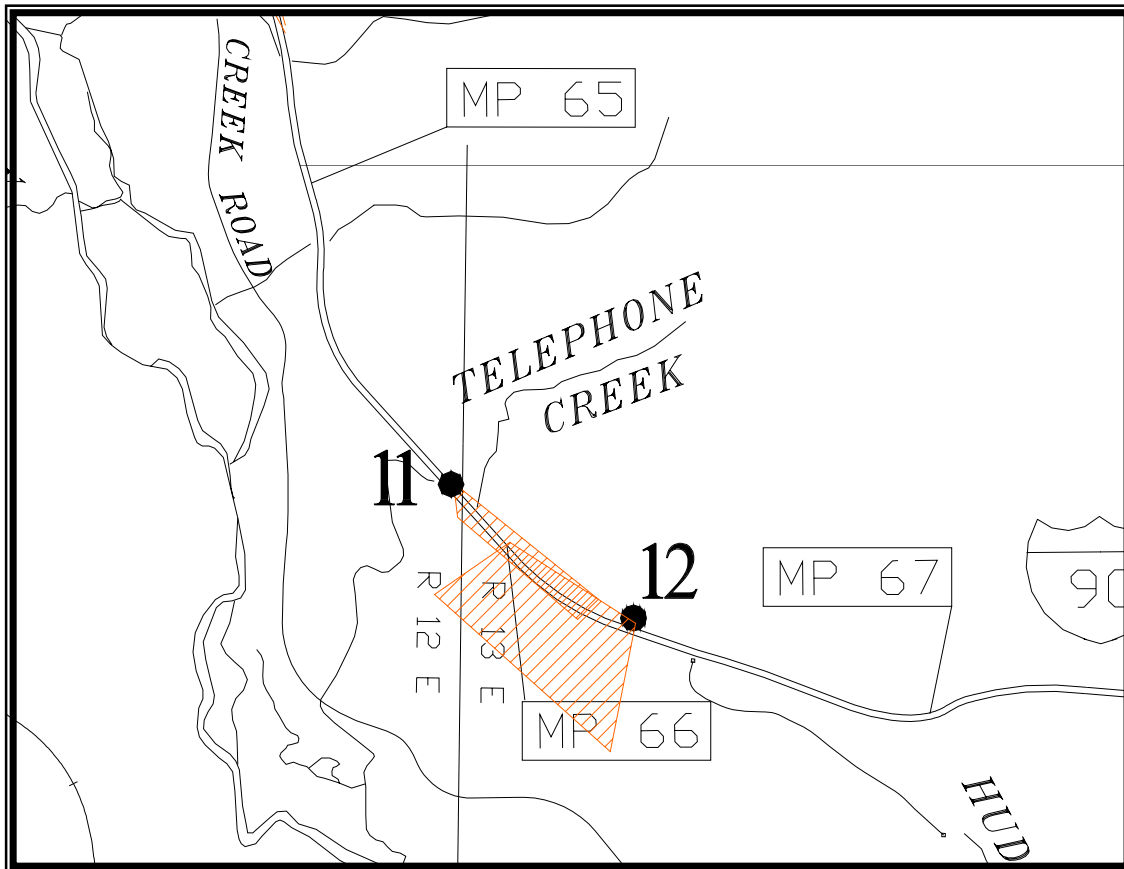


**Figure 30. Key View 10 - Eastbound near Cabin Creek Road**

This view has a forest stand of moderate age, which provides a sense of enclosure to the road. In this particular view, the mountain in the background provides interest to the scene, which has an average vividness rating. There is some development in this view that encroaches because of the power lines and the sparse tree cover on the logged mountain in the background. Its intactness rating is average to moderate. Because of the encroachment, the unity rating of this view is average.

#### 4.2.5. Landscape Unit 3

The transition between Landscape Units 2 and 3 takes place at MP 64.41 where the topography has limited the road width. The land slopes down from the southwest side of the highway. Jersey barriers form the median for this Landscape Unit because of the drop off of the land to the right of the eastbound lanes. A narrow band of second growth Douglas firs and cottonwoods line the southwest slope along I-90 in this area. Transmission Lines to the south, owned by Bonneville Power, come within 400 feet of the highway at MP 66. Figure 31 shows Landscape Unit 3 and its Key Views from the roadway.

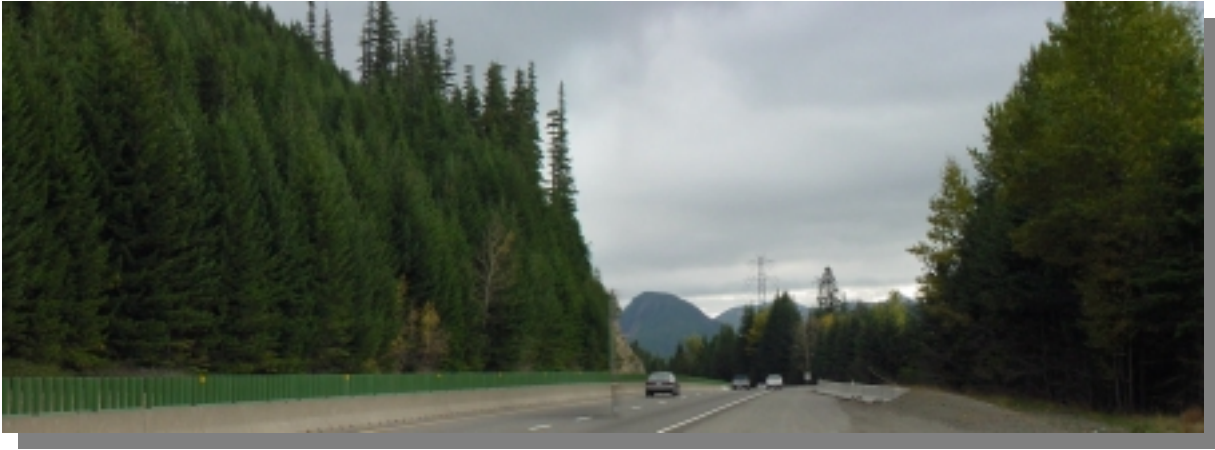


**Figure 31. Key Views in Landscape Unit 3**

Key Views in this Landscape Unit were chosen because they represent a critical area in this part of the project corridor – the area closest to the transmission lines.

##### 4.2.5.1. Key View 11 – MP 65.8 Eastbound

Figure 32, a photo taken from this Key View, shows Douglas fir and cottonwood trees, the road, and the Jersey barrier median in the foreground. Trees and a transmission tower form the middleground view. Mountains are in the background. The trees screen the majority of the transmission towers and lines from the view of travelers on the road in this location.



**Figure 32. Key View 11 - Eastbound MP 65.8**

Behind the power lines are slopes that have been logged in recent years. Vegetation on these slopes consists of fireweed, vine maple, young cottonwoods, and Douglas fir trees. See the photo in Appendix B.

The enclosure of the road by trees and the contrast of the trees with the mountain in the distance create an interesting scene. This scene has an average vividness rating. The road and the power transmission lines are signs of development in this scene. The power lines do encroach somewhat. This view has an average to moderately high intactness rating. Its overall unity is moderately high.

#### **4.2.5.2. Key View 12 – Westbound MP 66.4**

The foreground elements in Key View 12, seen in Figure 33, are the rocky slope to the right, the highway, and the Jersey barriers on either side of the west bound lanes. Douglas firs and cottonwoods form the middle ground view. There are glimpses of the power lines between the trees in the middleground view. Mountains, which have been logged in places, form the background view.



**Figure 33. Key View 12 - Westbound I-90 at MP 66.4**

The mountains visible in the background and the trees in the middleground make this scene one that is memorable. Its rating is just below average for vividness (because the lack of water in the view lowers the score). There is some development in the scene in the form of the highway and the power lines. In addition, there are visible logging traces on the mountains in the background. Intactness scores are just above average.

The trees screen the power lines except where there are gaps between trees. Unity in this view is moderately high. Figure 34 shows the power lines behind the trees at MP 66 and is included for information and was not analyzed as part of this study.



Figure 34. From roadside at MP 66

#### 4.2.6. Landscape Unit 4

The transition between Landscape Unit 3 and Landscape Unit 4 occurs at MP 67.75. Here the topography flattens out, allowing a wide center median. There is a forested hill between the two lanes of traffic at the northwestern end of the median. There is a wide grassy median at the southeastern end of this Landscape Unit. It is at this southeastern end of the project that the Western Hemlock climax community transitions to a Grand Fir forest community. Bonneville Power transmission lines parallel the highway from near MP 69 to MP 67.6. They are most visible where a tower stands above the highway at MP 67.7. That view is seen in Appendix B.

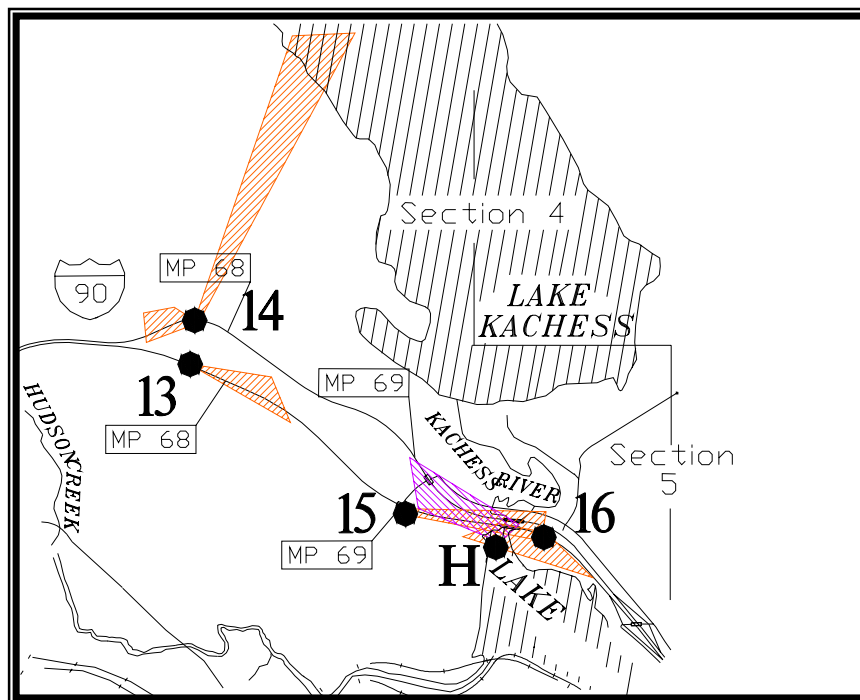


Figure 35. Landscape Unit 4 and its Key Views from the road



Figure 35 shows all the key views within Landscape Unit 4. There are four views from the road and one view toward the road in this Landscape Unit.

#### **4.2.6.1. Key View 13 – MP 67.8 Eastbound**

This view illustrates the typical eastbound view in this northern end of Landscape Unit 4. The foreground view is of the road, nearby Douglas fir and cottonwood trees, and the native grasses in the median. Middleground views are of the same mix of trees. The background view is also of trees, with distant mountain views straight ahead up the centerline of the road. The character of this section of the roadside can be seen in Figure 36, below.

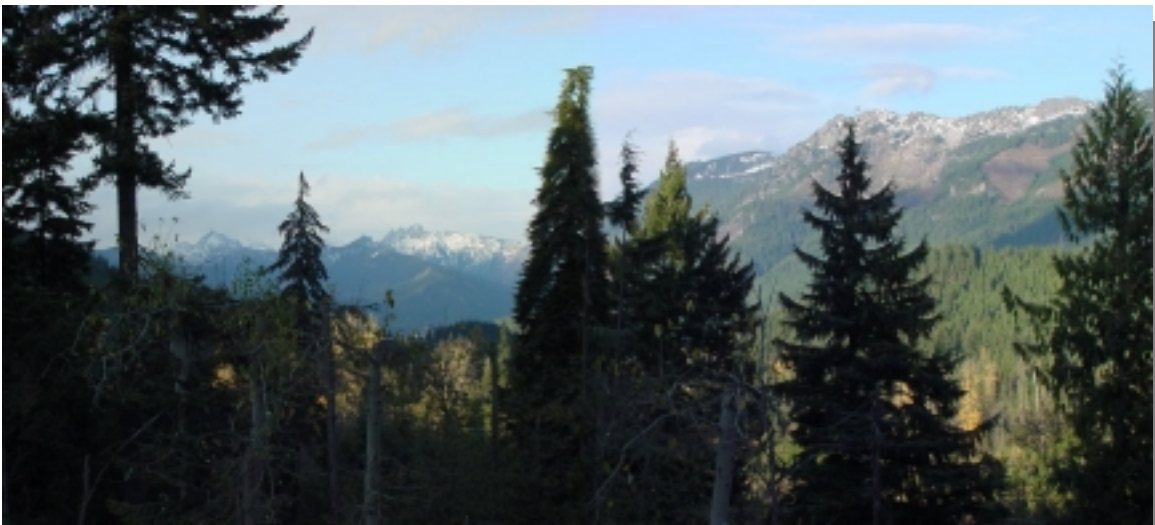


**Figure 36. Key View 13 - Mile Post 67.8 Eastbound**

The densely vegetated median, the rolling landform, the second-growth trees, and the distant mountain views combine to give this view an average vividness rating. (Ratings would be higher with a water view – the average rating is an artifact of the FHWA rating system.) There is little visible development other than the highway. The intactness rating for this scene is high. It also has a high unity rating since the forest seems almost unbroken when seen from a traveling vehicle and travelers on the westbound lanes are not visible.

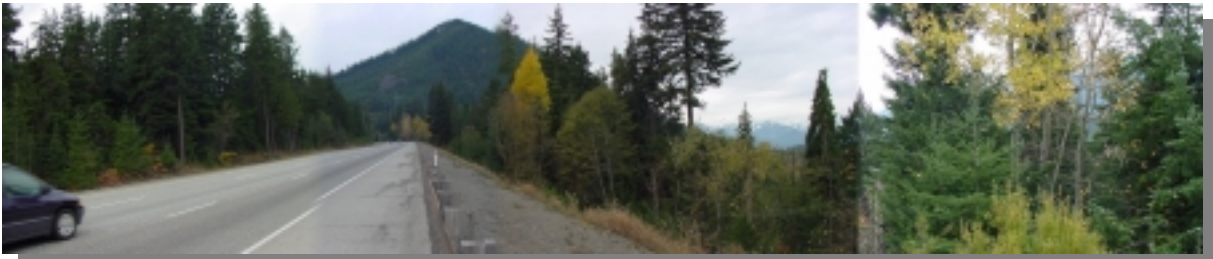
#### **4.2.6.2. Key View 14 – Westbound MP 67.8**

This viewpoint has an excellent, but quick, view up the valley of Lake Kachess to the Alpine Lakes Wilderness. This view, seen in Figure 37, is for information and has not been rated.



**Figure 37. View toward Alpine Lakes Wilderness from MP 67.8 Westbound**

This spectacular view is nearly blocked by second growth Douglas fir, Western Hemlock, black cottonwoods, and alders.



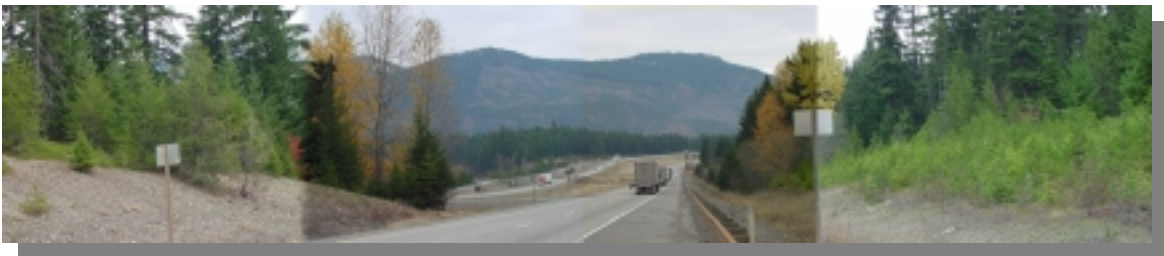
**Figure 38. Key View 14 - Westbound MP 67.8**

Figure 38 was analyzed for the study. The foreground view is of roadside vegetation. The middleground view is of the mountain straight ahead. The background view, just right of center, is of mountains in the Alpine Lakes Wilderness.

Key View 14 has a moderately high vividness rating. The contrast between the forest and distant mountain views is very memorable. Its lower score is a consequence of its lacking water views and the format of the FHWA rating method. The highway and the power lines, which can occasionally be seen on the north and straight ahead, are the only signs of development. It has a high intactness rating. The overall unity rating for this scene is high.

#### **4.2.6.3. Key View 15 – eastbound MP 69**

This view of the southeastern end of the project corridor and of Landscape Unit 4 opens from a forested corridor to a more open landscape. This view has Douglas fir seedlings in the foreground, more mature Douglas firs and cottonwoods in the middleground, and forest covered mountains in the background. There is guardrail dividing the roadway from the roadside here instead of the Jersey barrier common in the previous Landscape Units. Figure 39 also shows the back side of traffic signs and their visibility.



**Figure 39. Key View 15 - Eastbound MP 69**

This Key View has a vividness rating of just above average, again because of the lack of a water view. The road is the principle sign of development. It has a moderately high intactness rating. Its overall unity rating is moderately high.

#### **4.2.6.4. Key View 16 – Eastbound MP 69.5 – Lake Easton**

This view is of an arm of the lakebed of Lake Easton between I-90 and the John Wayne Trail. This year, it is dry, but commonly this area is covered in water. The foreground is of the guardrail, a struggling Douglas fir, and native grasses. Middleground views are of the lakebed

and the Douglas fir forest at Lake Easton State Park. Background views are of recently logged mountains, as seen in Figure 40.



**Figure 40. Key View 16 - Eastbound MP 69.5 - Lake Easton**

When lake levels are high, this is a very memorable spot on the drive through the project corridor. There are often children fishing from the bridge. The lake with its forested shore and the distant, rounded mountains give this a moderately high to high vividness rating. Road and traffic signs and the bridge over the Kachess River are signs of development. These cause some visual encroachment. Key View 16 has a moderately high intactness rating and a high unity rating.

#### **4.2.6.5. Key View H – Toward Kachess River Bridge from John Wayne Trail**

Key View H was taken from the bridge of the Kachess River located on the John Wayne Trail at Lake Easton State Park. This is a popular bridge for fishing and is located near camping and picnicking areas. Foreground views are of the river and the lake edges. The middleground view is occupied by I-90's bridge over the river. Background views are of the highway as it diverges around the wide median with its forested hill. There are also mountains in the distance.



**Figure 41. Key View H - Toward I-90 from Kachess River Bridge on John Wayne Trail**

This scene has a water view, forested hills, and distant mountains. It has a moderately high to high vividness rating. The bridge in the middleground and the steep slopes are signs of development as is the highway in the background. The intactness rating is moderately high. The road disrupts the unity of this view for a rating of average.

Rating sheets for these views can be found in Appendix A. Additional viewpoints were considered where it was deemed necessary to reflect the overall visual change within a Landscape Unit. These views can be found in Appendix B.

## 5. IMPACT ANALYSIS

Project impacts fall into two categories: those during construction and permanent changes as a result of the project. Impacts from construction are temporary in nature and include elements such as night construction lights, blasting, bridge scaffolding, pile driving, construction signs, detour roads, and miscellaneous construction vehicles. These impacts will not be analyzed for their visual impact because of their temporary nature.

Permanent impacts as a result of project construction are analyzed by Landscape Unit and by alternatives. There is a minimum of one, and in some cases a maximum of 3 proposed alternatives in each project Section. As stated in the Affected Environment section, Landscape Units are based on topography while project Sections are based on engineering requirements. There are 5 project Sections as seen in Figure 1. Where project alternatives do not differ significantly in their visual impacts, they will be analyzed together.

The *Roadside Classification Plan*, a WSDOT policy document, requires that the roadside within the project corridor be restored to a forest plant community because of its “Forest” classification and its funding. To determine the benefit in forest restoration as compared to erosion control techniques, this visual analysis split the ratings of these viewpoints into two sections. The basic impact analysis assumes that disturbed ground would be seeded fertilized and mulched with hydroseeding techniques (which can include native tree and shrub seeds) and that architectural treatments would be similar to those existing in the project corridor or those found in the *Standard Plans* (WSDOT, 2001). An Architectural Design Standard for this corridor and restoration according to the *Roadside Classification Plan* are discussed in the mitigation chapter of this study.

### 5.1. LANDSCAPE UNIT 1

The horizontal alignment in Section 1 for Alternatives 1 and 2 is the same. The difference in these alternatives is the size and number of bridges. These alternatives will be analyzed together. Alternative 3 follows closely the current alignment and will be analyzed as a part of the existing condition.

#### 5.1.1. Key View 1 – Westbound MP 56

All alternative alignments would move the highway to the middle ground because the road alignment at this point would shift to the west. The alignment shift can be seen in Figure 42.





**Figure 42. Alternative alignment in Project Section 1**

The traveler would be slightly closer to the lake and there would be greater physical separation from Forest Road 4832. Existing vegetation would be removed during construction, lowering the vividness score because of the lack of roadside vegetation. The intactness score remains equal to that of the existing condition, but the unity score is lowered because the road is not blended into the surrounded landscape.

#### **5.1.2. Key View 2 – MP 56 Eastbound**

The chain off areas would be lengthened in the alternatives for this section of roadway. There would be increased lighting and, as in Key View 1, the horizontal alignment shifts toward the lakebed. There could be potential distant views of the new bridges. Existing vegetation would be removed during construction, lowering the vividness score. Without the existing vegetation the road would intrude into the landscape causing the intactness rating to drop slightly. The unity rating would fall because the roadway would not be blended into the landscape.

#### **5.1.3. Key View 3 – MP 57.5 Eastbound and Key View 4 – Eastbound MP 58.5**

Key Views 3 and 4 are located in Project Section 2. This Project Section contains the snow shed and Slide Curve. There are three principle alternative proposals for this section: (1) The long tunnel, (2) The short tunnel, and (3) The Bridge Alternative. Each alternative will be analyzed separately for its visual impacts but the two Key Views will be analyzed together because the long tunnel lessens the impact of the road from both these views.

##### **5.1.3.1. Long Tunnel Alternative (1)**

The tunnel in this alternative would be 1.9 miles long. The view of the lake, the surrounding mountains, and vegetation would be lost. Those factors combine to drop the vividness rating to low. A large structure would be needed at the tunnel portal to house the ventilation system

needed to move air into and out of the tunnel. There would be message reader boards and traffic lights in front of the tunnel entrance to warn travelers of any problems ahead. The visual intactness rating would be lower than the existing condition because of the high level of development. The visual unity inside the tunnel would be very low compared to the existing condition. Figure 43 shows the long tunnel alignment.



**Figure 43. Air photo with long tunnel alternative alignment**

#### **5.1.3.2. Short Tunnel Alternative (2)**

The short tunnel alternative would retain the views of the lake through this section of the project with the exception of the 0.6 mile tunnel. The horizontal alignment would be straightened, which would improve sight distance and bring the traveler closer to the lake. Vegetation would be removed for this alternative. At 60 miles per hour, the traveler would be in the tunnel for less than one minute. While in the tunnel, the traveler would lose the view of the lake and the surrounding landscape. Figure 44 shows the short tunnel alignment.



**Figure 44. Short tunnel alternative alignment**

Message reader boards and traffic lights would be installed in front of the tunnel entrance to warn travelers of problems ahead. There will be an exit ramp for eastbound travelers wanting to stop at the viewpoint that would be located along the current alignment around Slide Curve. This section of roadway will also serve to relocate traffic should there be any problem in the tunnels that would block traffic. A tunnel maintenance facility having room for approximately two bays, a radio control office, and adjacent employee parking would be constructed near the north end of the Slide Curve viewpoint.

Views of the lake would improve from Key Views 3 and 4, resulting in higher vividness ratings than existing conditions. However, the intactness rating would be lower because of increased development, the removal of vegetation, and the newly exposed rock. The unity rating after construction would be lower because the roadway would not be blended into the landscape. Total visual quality after construction would be moderately low without full roadside restoration.

#### **5.1.3.3. The Bridge Alternative(3)**

The road in Key Views 3 and 4 would be moved out into the lake on a long bridge, as seen in Figure 45. The avalanche chutes would pass below the bridges. Viewers would have an enhanced view of the lake. The wider, straighter road would have improved sight distance.





**Figure 45. Alternative with alignment into the lake**

The vividness rating for Key Views 3 and 4 – The Bridge Alternative would increase to moderately high to high because of the increased water views. The intactness rating would remain the same as current conditions. The unity rating would increase slightly because of the removal of the snow shed. Total visual quality for this alternative is higher than existing conditions.

#### **5.1.4. Key View 5 – Eastbound MP 59.35**

For the area in which Key View 5 is located, there are two different alignments. Both tunnel alternatives have the same alignment at this location. The alternative with the alignment into the lake and behind the hill southeast of Slide Curve (The Bridge Alternative) is the second alternative analyzed from this viewpoint.

##### **5.1.4.1. Tunnel Alternatives**

Key View 5 looks southward along the lake. The two tunnel alternatives will widen the road. This will expose tall rock faces adjacent to the road. Vegetation will be removed on the hill slope to widen the road.

The vividness rating for this alternative is slightly below that of the existing conditions. Because of the increase in exposed, raw rock face the intactness rating is slightly lower in this alternative. The unity rating is slightly below the existing conditions.

#### **5.1.4.2. The Bridge Alternative**

The foreground view from Key View 5 would be of the restored roadbed. See Figure 45 for an aerial view of this alignment. The road would be to the west on a bridge in the middleground view. Travelers on the new alignment would have views of the lake on both sides of the roadway. Ahead, the road would depart from its current alignment and travel behind a hill. Mountains would be seen in the background.

The vividness rating of this alternative would be moderately high to high. The bridge over the water raises the vividness ratings. The intactness and vividness ratings would be moderately high.

#### **5.1.5. Key View 6 – Westbound MP 59.85**

For the area in which Key View 6 is located, there are two different alignments. Both tunnel alternatives have the tunnel entrance/exit at this location. The Bridge Alternative is the second alternative analyzed from this viewpoint. The sinuosity of the existing road alignment provides visual interest and this will change with the new alignments.

##### **5.1.5.1. Tunnel Alternatives**

The six parallel lanes of traffic would enter and exit the tunnel straight ahead of the view in Figure 16. The two tunnel portals would span a distance of approximately 200 feet and there would be a large structure to house the ventilation system connecting and surrounding the tunnel portals.

Foreground views would be of the roadway. Middleground views would be of the hill and tunnel portals, and the mountain with its transmission lines would remain as the background view.

Vegetation would be removed and a boring operation for the tunnels would be conducted in this location. This loss of vegetation would lower the vividness, intactness, and unity ratings. The large ventilation structure for the long tunnel would also lower the unity and intactness ratings to just above average. The short tunnel alternative would not have the external ventilation system and would have moderately high intactness and unity ratings. Total visual quality for the tunnel alternative would be between average and moderately high. This is lower than the existing conditions.

##### **5.1.5.2. Bridge Alternative**

This alternative would retain the sinuosity of the roadway and move it over the lake on a bridge around Slide Curve. From Key View 6, the restored roadway would be in the foreground view. The bridge would be in the middleground view, and the mountain with transmission lines would remain in the background view.

For the bridge alternative, at Key View 6, the vividness rating would be slightly higher than the existing condition because of the views from the bridge of the lake. The intactness and unity ratings are slightly lower than existing conditions. The total visual quality of this view is slightly higher than that of the existing conditions.

#### **5.1.6. Key View A – I-90 from ski slopes**

The ski slopes have a distant view of the Hyak area and the beginning of the project. The highway is in the background of this view. Alternatives 1 and 2 alter the alignment toward the lake. There would be minor visual impacts during plant establishment. Alternative 3 has nearly the same alignment as existing conditions. This change would have only minor visual impacts from the viewpoint on the ski slopes. Vividness, intactness, and unity ratings remain equal to existing conditions for all alignment alternatives.

#### **5.1.7. Key View B – Residences at Hyak**

From this viewpoint the highway is in the middleground and is seen as a thin line. This would not change in any of the alternative alignments. Vegetation, outside the right of way partially shields the view of the highway. All visual quality ratings are expected to remain the same as a result of construction.

#### **5.1.8. Key View C – Boat Ramp**

The view of I-90 from this Key View is of a horizontal line through the middleground. All alignments would shift the road out into the lake slightly bringing it closer to this viewpoint. However, the roadway is expected to remain in the middleground. Vividness, intactness, and unity ratings remain equal to existing conditions after construction of any of the alternatives.

#### **5.1.9. Key View D – John Wayne Trail at Cold Creek**

As in all the views from the John Wayne Trail, the viewer sees a thin pale band with trucks and cars moving along its length in the middleground. Existing total visual quality ratings are high from the trail along the western shore of Lake Keechelus. Alternatives for the north end of the project shift the road toward the lake slightly. This will remove vegetation between the road and the lake that will lower the vividness rating and make the road more visible. Increased visibility of the road lowers the intactness and unity ratings from high to moderately high.

#### **5.1.10. Key View E – John Wayne Train across from I-90 snow shed**

There are three major alternatives that affect this viewpoint: (1) the long tunnel, (2) the short tunnel, and (3) the bridge alternative. They will be discussed separately.

##### **5.1.10.1. Long Tunnel Alternative (1)**

From Key View E, the roadway would disappear. Without mitigation, there would still be a horizontal line within the viewshed. However, the movement of cars and trucks would not catch the eye. Vividness ratings would be equivalent to those of the existing condition. Intactness and unity ratings would be high.

##### **5.1.10.2. Short Tunnel Alternative (2)**

The short tunnel would enter the hillside north of Slide Curve and be seen from this Key View. North of the tunnel portals, the highway would be built on bridges above the current rock chutes.

Bridge piers would be visible from this location, as would the tunnel portals. A portion of the current roadway around Slide Curve would be retained and used as a viewpoint so that eastbound travelers could safely access a view of Lake Keechelus. There would be a tunnel maintenance and radio facility at this location which would be visible from across the lake. From Key View E, viewers would continue to see the thin, horizontal line of I-90 along the entire western shore of the lake.

The short tunnel alternative has a moderately high to high vividness rating, a moderately high intactness rating, and a moderately high unity rating. The total visual quality rating of this alternative is equal to the existing condition.

#### **5.1.10.3. Bridge Alternative (3)**

The Bridge Alternative would bring the road slightly closer to the viewer at Key View E, but it would still remain in the middleground view. The existing roadbed would be restored and vegetated. Future rockslides would pass below the bridge. These debris slides would eventually reach the point of repose and become stable enough for native plant recruitment.

Vividness ratings for this alternative at Key View E are high. Intactness ratings are moderately high to high and the unity rating is high. Total visual quality would be high to moderately high.

#### **5.1.11. Key View F – Slide Curve**

The alternatives can be divided into two for the purposes of this analysis: the tunnel alternatives and the bridge alternative.

##### **5.1.11.1. Tunnel Alternatives**

In this alternative and from Key View F, the tunnel portals can be seen as they emerge from below Slide Hill. Though the highway would be relocated slightly closer to the lake in one area, it would be in the middleground view from this location. Foreground and background views are dominant.

This alternative proposes to put a viewpoint where the existing road curves around Slide Hill. The viewpoint would be visible from this Key View.

The visual impacts of this alternative are minor because of the distance between the viewer and the view. There is a slight decrease in the vividness rating because of the removal of vegetation. Total visual quality ratings are high for this alternative from Key View F.

##### **5.1.11.2. The Bridge Alternative**

The narrowest distance between the east and west shores on Lake Keechelus occurs at Slide Curve. The addition of a bridge at this location would bring the road closer to Key View F. From this location the bridge would appear to curve toward the viewer before it curved toward the opposite shore where it would cut across the current roadbed and move inland.

Because of the angle of the view, this alternative would have large visual impacts. The vividness rating is high, but the intactness and unity ratings drop to moderately high.



#### **5.1.12. Key View G – View of Lake Keechelus from south to north**

The alternatives can be divided into two for the purposes of this analysis: the tunnel alternatives and the bridge alternative.

##### **5.1.12.1. Tunnel Alternatives**

From this Key View the southern tunnel portal and its approaches can be seen. The road would be straightened causing the removal of vegetation on the hill in the middleground. The rock cut could be more visible than that which currently exists. A large structure associated with the long tunnel alternative would be constructed as part of the tunnel portal to house the necessary ventilation system for a long tunnel. Traffic lights will be placed before the tunnel entrances to stop traffic in case of any problem in the tunnel. A minimum of two lanes around Slide Curve will be retained to reroute traffic in case of a blockage within the tunnel.

Because of the visibility of potential rock cuts in this alternative, the intactness rating goes down slightly. The total visual quality for this alternative is high to moderately high.

##### **5.1.12.2. The Bridge Alternative**

The bridge crosses the existing highway and passes behind the hill seen from this view. This alternative would require massive earthwork that would cause removal of forest cover and potential large vertical rock faces. The vividness rating drops slightly because of the decrease in vegetation. Intactness is slightly lower because of the break in forest cover and large rock faces. This influences the unity rating which drops to moderately high. Total visual quality drops to moderately high.

## **5.2. LANDSCAPE UNIT 2**

#### **5.2.1. Key View 7 – Westbound MP 60.75**

This alternative carries the road in its current horizontal alignment but widens the road to three lanes in each direction. This widening will necessitate removing vegetation and cutting into the rock on either side of the road. The rock island will remain in the median but will be slightly narrower. The vividness and unity ratings are equal to existing conditions. Intactness ratings drop slightly because of the increase in pavement and the newly exposed rock faces. Total visual quality ratings are slightly below existing conditions.

#### **5.2.2. Key View 8 – Eastbound MP 61.75 - Price Creek Snow Park Vicinity**

This location has a grassy median a wide grassy shoulder with a mixed age forest beyond, within the right of way. Where possible avoid or minimize disturbance to mature Douglas firs. This will retain the feeling of enclosure and provide screening for the highway. Vegetation will be removed with the road widening. This will decrease the vividness rating slightly. Intactness and unity ratings could remain the same as existing conditions with minimal disturbance to vegetation.

### **5.2.3. Key View 9 – Westbound MP 63.9**

The project proposes widening this from two to three lanes of traffic in each direction. This location currently has mature Douglas firs growing in the median. These provide a dense visual screen between eastbound and westbound lanes of traffic and make this a pleasant section of roadway to travel through.

The removal of trees will change the character of this section of I-90. Visual quality will remain strong if the widening is done on the outside of the lanes rather than in the median. This analysis assumes widening to the outside.

The removal of vegetation for widening the road will result in a lowering of the vividness and intactness ratings. Total visual quality would be moderate.

### **5.2.4. Key View 10 – MP 64.1 - Cabin Creek Vicinity**

I-90 would be widened from two lanes in each direction to three. At the end of the eastbound Cabin Creek onramp there is a small stand of large Douglas firs. These could be impacted by construction. The removal of these trees will have a significant impact on the vividness, intactness and unity ratings for this view. Vividness ratings are average, intactness ratings are average to moderately high, and the unity rating is moderately high.

## **5.3. LANDSCAPE UNIT 3**

This section of the project runs between a mountain to the northeast and a valley to the southwest. Between the valley and the highway there are Bonneville Power transmission lines. Any removal of vegetation to the southwest will expose the traveler to increased views of the transmission lines and the previously logged hills beyond.

### **5.3.1. Key View 11 – Eastbound MP 65.8**

Key View 11 is located in Project Section 4, which has only one alternative – Minimum width median. Any widening of the highway will remove trees to the southwest. A vertical separation of the directions of traffic is proposed, with the eastbound lanes to the southwest and approximately 20 feet below the westbound lanes. This Project Section will have retaining walls.

The removal of trees will expose the traveler to increased views of clear cuts and transmission lines. Eastbound travelers will be closest to these views and will have a retaining wall to the left. Because of the removal of trees, vividness, intactness, and unity ratings are below average.

### **5.3.2. Key View 12 - Westbound MP 66.4**

This view is from the opposite direction of travel. See Key View 11 for further discussion. The transmission lines will be very visible after the removal of trees. Vividness ratings would fall to below average because of the visibility of the transmission lines (Although there may be people who enjoy seeing them). Intactness ratings show a moderately high level of development. Unity ratings are moderately low.

## 5.4. LANDSCAPE UNIT 4

There are two principal alignments in this Landscape Unit. One follows the existing alignment and adds one lane in either direction. There would be two bridges for wildlife crossing in this alternative. The other provides a minimum width median for one mile at the top of Easton Hill to allow for one bridge for wildlife crossing.

### 5.4.1. Key View 13 – Eastbound MP 67.8

#### 5.4.1.1. *Minimum Width Median*

This alternative would realign the westbound lanes to be parallel with the eastbound lanes for one mile at the top of Easton Hill with a minimum width median. A bridge would be constructed for wildlife to cross under the road at a favorable location near the top of the hill.

This alternative would require cutting through the existing median to bring the lanes of traffic into parallel alignment with a minimum width median. Travelers would view oncoming lanes of traffic. The large amount of earthwork and disturbance to vegetation would lower the visual quality ratings to just above average.

#### 5.4.1.2. *Current Alignment*

The project would widen the highway in the current alignment at this location and provide for a wildlife overcrossing over the westbound lanes and an undercrossing under the eastbound lanes. Vegetation will be removed. This will lower the vividness rating for vegetation and lower the intactness ratings. The total visual quality will be moderately high.

### 5.4.2. Key View 14 – Westbound MP 67.8 – View up Lake Kachess Valley

This Key View has a short, but spectacular view up Lake Kachess Valley to the Alpine Lakes Wilderness. The Mountains to Sound Greenway Trust has opened up a small view, but this view is not long enough for traffic moving at 65 to 70 miles per hour. Caution needs to be used in opening this view further because of power transmission lines that parallel I-90 downhill and to the northeast.

There are two alternatives for Project Section 4. One would continue in the current split alignment. This option would retain the view up Lake Kachess Valley. The other alternative would have a minimum width median at the top of Easton Hill adjacent to the existing eastbound alignment, which would eliminate the view up Lake Kachess Valley. There are three lanes of traffic at Key View 14. A fourth lane will be added with the same begin and end limits as the existing auxiliary lane.

#### 5.4.2.1. *Minimum Width Median*

This alternative would realign the westbound lanes to be parallel with the eastbound lanes for one mile at the top of Easton Hill with a minimum width median. A bridge would be constructed for wildlife to cross under the road at a favorable location near the top of the hill.

This alternative would require cutting through the existing median to bring the lanes of traffic into parallel alignment with a minimum width median. Travelers would view oncoming lanes of traffic. In addition, the view from the westbound lanes of Lake Kachess Valley would be lost.

The large amount of earthwork and disturbance to vegetation would lower the visual quality ratings to just above average.

#### **5.4.2.2. Current Alignment**

Removal of vegetation for the additional lane would be required in the median. There is a wide median at this location. Vividness and intactness ratings would be lower because of the impact to vegetation. Total visual quality at this location would be moderately high.

#### **5.4.3. Key View 15 – Eastbound MP 69**

At this point, the median changes from hill to swale. Highway widening will impact vegetation. Most trees in this section are young or stressed. Intactness ratings go down because of the loss of part of the median. Total visual quality is average to moderately high.

#### **5.4.4. Key View 16 – Eastbound MP 69.5**

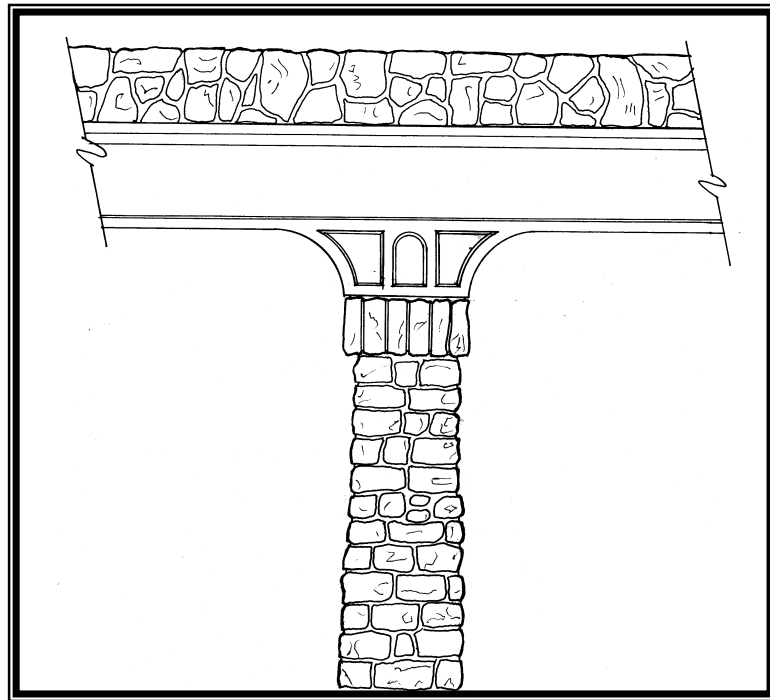
There is a view here of Lake Easton and the project alternative is to widen the bridge over Kachess River. Vividness, intactness, and unity ratings are expected to remain equal to existing conditions.

#### **5.4.5. Key View H – From Lake Easton State Park Bridge Over Kachess River**

This view from a popular fishing bridge has the eastbound bridge over the Kachess River in the middleground. Any changes to the bridge will affect the visual quality from this location. After construction, the view from this location is expected to remain the same as existing conditions.

## **6. MITIGATION FOR PERMANENT PROJECT IMPACTS**

Architectural structures, such as bridge girders and railing, bridge abutments, tunnel portals, retaining walls, traffic barriers, and light standards will carry a Cascade theme, where possible, throughout the project corridor. The Figure 46 shows a bridge pier and railing designed with the application of the Cascade theme.



**Figure 46. Bridge pier and railing with Cascade design theme**

Sketches in this report show an artist's concept of possible design ideas. The final design may look different than what is shown in the sketches. Design elements are at an early stage in planning and are expected to evolve as the design is refined. Sketches are included to provide a point of departure for discussion.

A corridor theme would unite structural elements from a visual perspective and improve the visual quality ratings from those existing at present.

Restoration of healthy soils and a native plant community in all disturbed areas is a foundation of the mitigation recommendations. Shrubs in the median can provide headlight and distraction screening as well as providing some impact attenuation for run-off-the-road vehicles. Trees and shrubs within the right of way on roadsides blend the roadway into the surrounding landscape, provide visual screening, and facilitate driver guidance and navigation. Additional benefits to restored forest ecosystems are stormwater uptake, infiltration of stormwater into soils, particulate uptake, and erosion control. There are quantifiable benefits to restoring plant communities in the areas of air quality, water quality, aesthetics, and stormwater mitigation.<sup>6</sup>

The *Roadside Classification Plan* is a WSDOT policy manual that states that when a mobility or improvement project impacts an area, the roadside shall be restored from right of way to right of way line and from beginning to the end of the project according to the roadside Character Classification. In this project corridor, the Character Classification is "Forest." Roadside restoration under Treatment Level 2 for a "Forest" classification consists of the restoration of native forest communities using small plant material (bare root, plugs, and one gallon container size plants) as well as soil restoration (which includes but is not limited to compost, topsoil, and mycorrhizal inoculation) and hydroseeding, fertilizing, and mulching. Construction impacts are temporary and no mitigation measures are required.

<sup>6</sup> WSDOT. *A Case Study of Benefit-Cost Analysis: Soil Bioengineering as an Alternative for Roadside Management*. Olympia, WA. June 2001.

## 6.1. LANDSCAPE UNIT 1

### 6.1.1. Key View 1 – Westbound MP 56

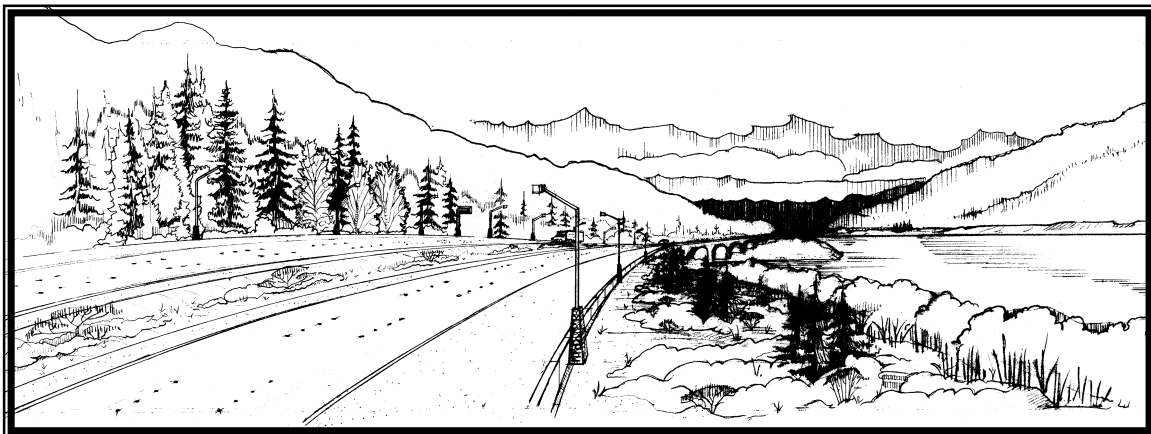
The existing foreground view would be restored to a native Silver fir forest ecosystem. Vegetation used in restoring the old roadbed would screen the views between I-90 and Forest Road 4832. The use of trees and shrubs will aid in blending the roadway into the surrounding landscape and will provide enhanced stormwater uptake and permanent erosion control.

To minimize adverse impacts from lighting (glare) associated with luminaires, low level, directed lighting will be used.

The ratings using the recommended mitigation will increase the vividness rating above the existing condition. The intactness rating is raised because of the native forest restoration and the unity score goes up because the facility is blended into the surrounding area and the entire project corridor carries a common architectural design theme. For Key View 1, the total visual quality of the new roadway, with mitigation, is higher than the existing.

### 6.1.2. Key View 2 – Eastbound MP 56

Native shrubs and groupings of trees would be planted between the road and the lake. In addition, the current roadbed would be removed and planted with a native Silver fir plant community. This will screen the highway and Forest Road (FS Rd) 4832 from one another. Increased trees and shrubs will blend the road into the surrounding area. Figure 47 shows the concept for mitigation around this viewpoint.



**Figure 47. Concept for Key View 1 Alternative A & B**

New traffic barriers should be designed to fit visually into the Cascadian corridor design theme. These barriers may include new light standard bases that fit with the corridor theme. As in all WSDOT designs, safety is the primary consideration. No design will compromise safety.

To minimize adverse impacts from lighting (glare) associated with luminaires, low level, directed lighting will be used.

The intactness rating of Key View 2 would go up due to restoration of the native forest plant community. The intactness rating would return to that of the existing condition with the mitigation measures recommended above. The overall unity rating would be higher than the existing due to the blending of the roadway into the surrounding landscape by native vegetation and by the consistent use of the architectural design standards. For Key View 2, the total visual quality of the new roadway, with mitigation, is higher than the existing.

### **6.1.3. Key View 3 – Eastbound MP 57.5 and Key View 4 – Eastbound MP 58.5**

Key Views 3 and 4 are located in Project Section 2. This Project Section contains the snow shed and Slide Curve. There are three principle alternative proposals for this section: (1) The long tunnel, (2) The short tunnel, and (3) Building a bridge into the lake west of Slide Curve and cutting the roadway into the hillside east of Slide Curve. The mitigation for each alternative will be analyzed separately for its visual impacts.

#### **6.1.3.1. Long Tunnel Alternative (1)**

The tunnel portals and any associated structures, such as ventilation housing and maintenance facilities, should be designed according to the Architectural Design Standards with a Cascadian theme. Lighting inside the tunnel should provide glare-free illumination. The incorporation of artwork inside the tunnels could interrupt the monotony of being in such a long tunnel.

This view from the road would have a lower vividness rating, even with mitigation, than the existing condition. The intactness and unity ratings would also be low because of the level of development and the loss of the original views while inside the tunnel. Total visual quality would be significantly lower than existing conditions after mitigation.

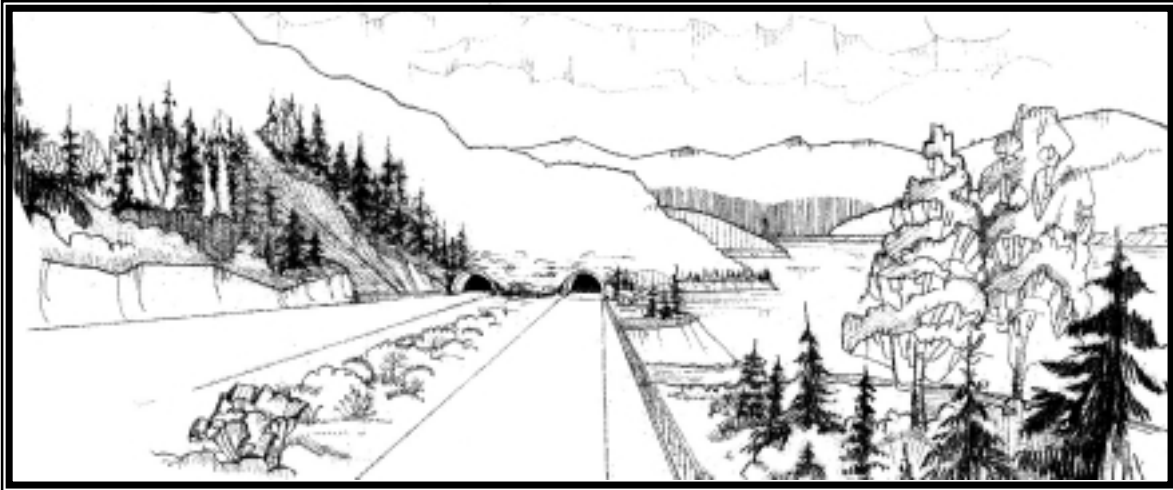
#### **6.1.3.2. Short Tunnel Alternative (2)**

The tunnel portals and any associated structures, such as maintenance facilities, should be designed according to the architectural design standards with a Cascadian theme. Lighting inside the tunnel should provide glare-free illumination. A native forest plant community would buffer views from oncoming traffic and blend the roadway and structures into the surrounding area. The concept for Key View 3 after mitigation is seen in Figure 48.

A viewpoint could be created using the existing road alignment around Slide Curve for eastbound traffic. This would provide a place to stop and enjoy the view and could provide for visitor interpretation of the history and ecology of Lake Keechelus. If this were done, the view from this portion of the road would remain.

Exposed rock faces should be treated with a weathering agent to blend them in to the surrounding rock.





**Figure 48. Concept for Key View 3**

After mitigation, Key Views 3 and 4 would have a higher vividness rating because of the increase in vegetation (in addition to the increased views of the lake). The intactness rating would be equal to the existing conditions because of the viewpoint. Unity ratings would be equal to those before construction. Overall, the visual quality of these Key Views would improve over existing conditions after mitigation.

#### **6.1.3.3. *Build Into the Lake West of Slide Curve & Into Hillside East of Slide Curve (3) – The Bridge Alternative***

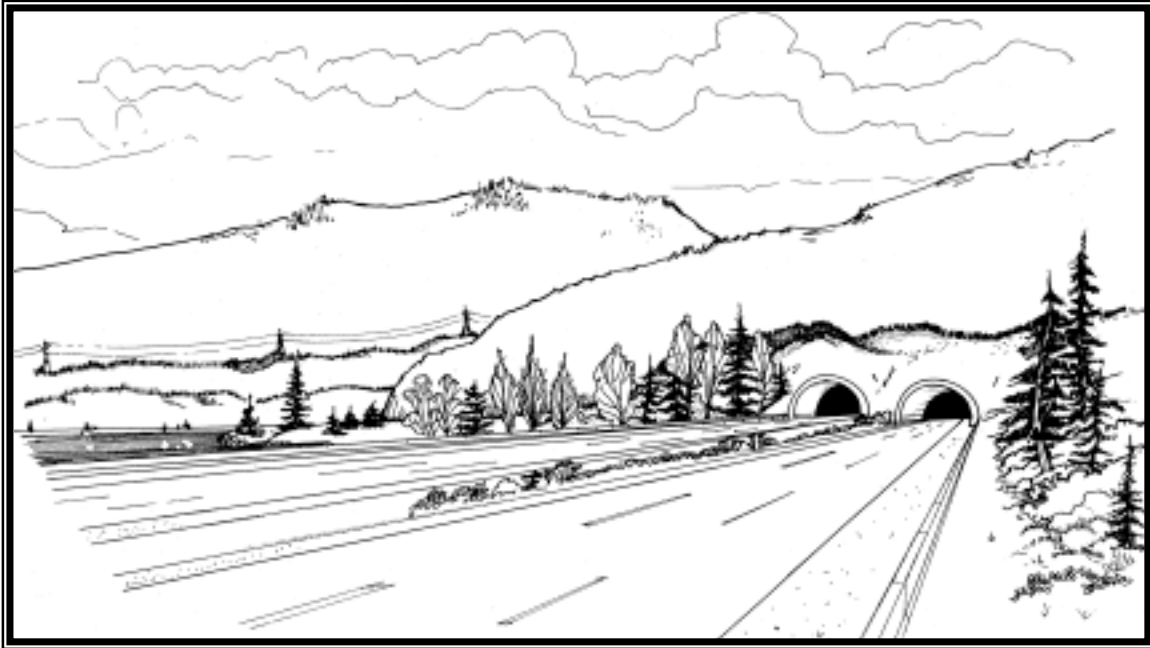
The bridge and bridge railings should be designed according to the Architectural Design Standards with a Cascadian theme. The repetition of the curves along the bridges provides a rhythm that is comfortable and pleasing to the viewer. Using this design theme throughout the corridor provides a sense of unity. Where the current roadbed has been removed, the native Silver fir forest community will be restored. This will provide a visual buffer and blend the roadside into the landscape.

Of the three alternatives for Section 2, this mitigated alternative has the highest total visual quality – well above existing conditions and slightly above the short tunnel alternative. The vividness rating is high to very high with revegetation and the increased lake views. Intactness ratings are high because of the restoration of the forest along the current roadbed. The unity rating is high.

#### **6.1.4. Key View 5 – Eastbound MP 59.35**

##### **6.1.4.1. *Tunnel Alternatives***

The design of traffic barriers will comply with the Architectural Design Standards and allow for lake views. Exposed rock faces should be treated with a weathering agent to blend the newly exposed areas with presently exposed rock faces. In addition, rock faces should be laid back at a 1.5 H: 1 V slope or stepped back to allow pockets of vegetation to grow. The existing roadbed, when removed, will be restored to a native Silver fir forest plant community. This will blend the road with the surrounding landscape. Figure 49 depicts the concept for Key View 6.

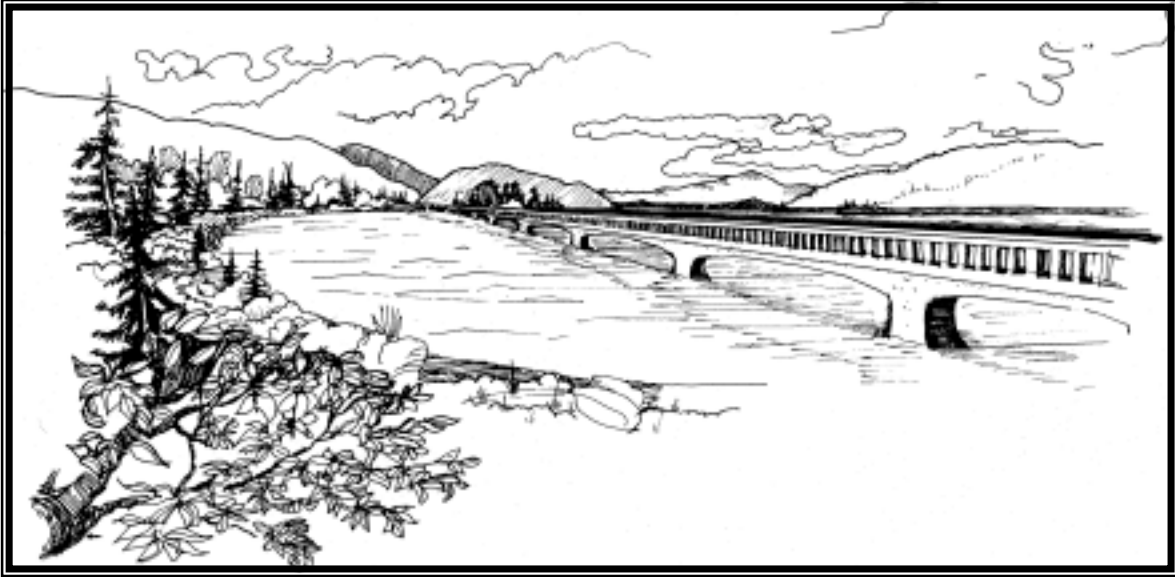


**Figure 49. Key View 6 - Tunnel Alternative**

After mitigation, the vividness rating will be slightly higher due to the increase in vegetation. The intactness rating remains moderately high. The unity rating remains moderately high with mitigation. The total visual quality of this alternative is higher than the existing ratings.

#### **6.1.4.2. The Bridge Alternative**

Mitigation for this part of the project should include restoring the former roadbed to a Silver fir forest plant community. This alternative would require disturbance of the vegetation when the road bends behind the hill. This would also entail large cut slopes. These cut slopes should be laid back at a slope flatter than or equal to 1.5H:1V so vegetation can be planted. Any exposed rock slopes should be treated with a weathering agent to blend the road into the exposed rock north or south of the road cut. Figure 50 shows the concept for Key View 5.



**Figure 50. Key View 5 - Bridge with shoreline restoration**

Key View 5's vividness rating after mitigation is high because of the water view and the restored native forest. The intactness rating is moderately high to high. The unity rating after mitigation is high. The total visual quality rating for this alternative is higher than the existing and higher than the tunnel alternative.

#### **6.1.5. Key View 6 – MP 59.85 Westbound**

##### **6.1.5.1. Tunnel Alternatives**

Mitigation for these alternatives will include using the Architectural Design Standards for this project to design the tunnel portals with a Cascadian theme. The use of this theme in guardrail, traffic barrier, and lighting design will provide visual unity throughout the project corridor.

Restoration of the native plant community will provide multiple benefits such as visual screening, erosion control, wildlife habitat, and stormwater uptake. The median will be planted with native shrubs and grasses. With these recommended mitigation measures in place, the total visual quality rating for this Key View increases from the existing condition slightly. The increase in the vividness rating for vegetation is responsible for this.

##### **6.1.5.2. The Bridge Alternative**

Mitigation measures for this alternative include the restoration of the existing roadbed to a native Silver fir forest community and the use of the Cascadian theme in bridge piers and railings. If this alternative were constructed, the view from this location would be of a forest in the foreground, the bridge over the lake in the middleground, and the hills in the background, as seen in Figure 51.



**Figure 51. Key View 6 - Bridge Alternative with restored roadbed**

This alternative would have the highest total visual quality ratings of the two alternatives at this location. This is caused by the large amount of land that could be restored to a native plant community.

#### **6.1.6. Key View A – I-90 from ski slopes**

All alternatives will be evaluated together because of the distance from the project from this viewpoint. Mitigation measures for this area were discussed in Key View 1. Restoration of the Silver fir forest community will blend the facility into the surrounding landscape. After mitigation, the total visual quality is slightly higher because of the increase in the vividness rating after vegetation has become established.

#### **6.1.7. Key View B – Residences at Hyak**

All alternatives will be evaluated together because of the distance from the project from this viewpoint. Mitigation measures for this area were discussed in Key View 1. Restoration of the Silver fir forest community will blend the facility into the surrounding landscape. In approximately twenty years, the trees will block much of the highway from this viewpoint. The addition of trees in the right of way increases the vividness rating and total visual quality ratings to just slightly above average. This is the most developed area in the project corridor. The elements that distract from this view are outside the highway right of way.

While not technically associated with this project, the view of the sand pile should be screened with trees along the property on the north and east boundaries to screen views of the facility.

#### **6.1.8. Key View C – Boat Ramp**

Where trees are growing between the lake and the roadway, the road blends into the background vegetation; even intermittent clumps of trees aid in this effect. Restoration of native trees and

shrubs along the lake edge, where possible, will help in this screening. Where bridges are necessary, the repetition of the arch, as described in the Architectural Design Standards, will provide a rhythm that is visually pleasing.

The vividness and total visual quality ratings are higher with mitigation than either the existing condition or construction without mitigation.

#### **6.1.9. Key View D – John Wayne Trail at Cold Creek**

Mitigation for construction includes revegetation with native shrubs and trees between the road and the lake, where possible, and the use of the arch on bridge piers. This screening and visual rhythm will increase the vividness, intactness, and unity ratings above those for existing conditions, to a high total quality rating.

#### **6.1.10. Key View E – John Wayne Trail across from I-90 snow shed**

There are three major alternatives that affect this viewpoint: (1) The long tunnel, (2) The short tunnel, and (3) The bridge alternative. They will be discussed separately.

##### **6.1.10.1. Long Tunnel**

With restoration of a native Douglas fir forest plant community, the road will disappear from view in 20 years. This will increase the vividness, intactness and unity ratings to very high. This mitigated alternative has the highest visual quality rating in this study.

##### **6.1.10.2. Short Tunnel**

With the restoration of the native forest community this alternative will be blended into the existing forest. The tunnel portals can be blended into surrounding rock using colored concrete or stains. Bridges built over the rock chutes will have the arched Cascadian design theme to carry a common rhythm throughout the corridor. The concept for this alternative is seen in Figure 52.



**Figure 52. Key View E after mitigation**

#### **6.1.10.3. Bridge Alternative**

The restoration of a native Douglas fir forest community on the recontoured roadbed will eliminate much of the visibility of the rock faces that are currently seen from this Key View. This will raise the vividness and intactness ratings for this alternative. Total visual quality will be high for this alternative from this Key View after mitigation.

#### **6.1.11. Key View F – John Wayne Trail view of Slide Curve**

##### **6.1.11.1. Tunnel Alternative**

Mitigation for the tunnel alternative will include the use of the Architectural Design Standards to create tunnel portals that carry the corridor theme. All disturbed slopes will be fully restored to a native forest community. Where possible trees and shrubs will be planted between the highway and the lake. After mitigation, all values for vividness, intactness, and unity equal those before project construction. Total visual quality rating is high.

##### **6.1.11.2. The Bridge Alternative**

Bridge pier and railing design will comply with the Architectural Design Standards for this project. This will create a rhythm that is easily perceived by the viewer and enhance the vividness rating for manmade elements. Native forest restoration in the relict roadbed will also improve the vividness rating. From this view, the cut into the hillside is just beginning. The assumption is made that slopes can be laid back to 2H:1V to allow revegetation of the slopes.

Because of the large structure this alternative has and the perspective of the viewer, this alternative will lower the intactness and unity ratings. Total visual quality is lower for this alternative, even with mitigation, than existing conditions.

## **6.1.12. Key View G - John Wayne Trail view of Lake Keechelus from south to north**

### **6.1.12.1. Tunnel Alternatives**

Blending the portal concrete with the surrounding rock will help unify the view. In addition, restoring the native forest community in disturbed areas and between the highway and the lake will blend the highway into the landscape and provide screening.

The addition of vegetation between the highway and the lake raises the vividness rating to high. Intactness and unity ratings are also high, giving this view a slightly higher total visual quality rating after the project than currently exists.

### **6.1.12.2. Bridge Alternative**

The old roadbed will be restored to native forest in this alternative. The restoration of such a large area increases the vividness rating of this mitigated alternative. However, the disturbance of such a large area as would be required by the rerouting of the highway east of the hill in the middleground would offset that restoration. Mitigation always emphasizes avoiding and minimizing impacts before considering restoration. The highest mitigation for this alternative would be to avoid the large impact of relocating the road behind the hill.



**Figure 53. Key View G - Bridge Alternative**

The bridge piers in this alternative should be designed using the Cascadian arch and other elements to comply with the Architectural Design Standards for this project. Figure 53 shows the view of the bridge over the lake from this perspective.

Vividness ratings drop to average to moderately high. The intactness ratings are lower than the existing or tunnel alternatives. The total visual quality for this alternative is moderately high.



## 6.2. LANDSCAPE UNIT 2

Landscape Unit 2 contains Project Section 3. The alternative for this section follows the current alignment

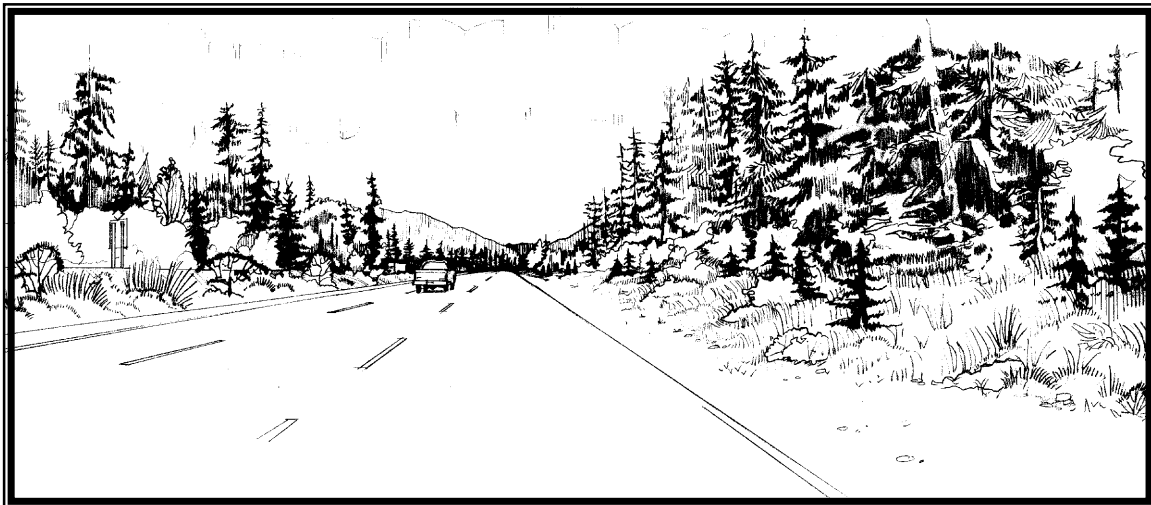
### 6.2.1. Key View 7 – Westbound MP 60.75

Mitigation for this vicinity should include a weathering agent applied to blend the newly exposed rock faces with adjacent weathered rock. Shrubs should be planted in the median beyond the rock island, to reduce glare from opposing headlights. Native grasses, shrubs, or trees will be planted in all disturbed areas where there is existing soil.

After mitigation, the vividness rating is just below average. Intactness and unity ratings are moderately high.

### 6.2.2. Key View 8 – Eastbound MP 61.75 – Price Creek Snow Park Vicinity

Mitigation at this Key View location could include installing guardrail to allow for the retention of large trees in the right of way. The removal of the on and off ramps for the Price Creek snow park will allow for visual continuity. The concept for this Key View is seen in Figure 54.



**Figure 54. Concept for Key View 8**

Restoration of the native forest plant community in disturbed areas and planting shrubs in the median will enhance intactness and unity ratings. Total visual quality will be moderately high for this location after mitigation.

### 6.2.3. Key View 9 – Westbound MP 63.9

Mitigation in this Key View should focus on avoiding the removal of mature Douglas firs. If this is not possible, the native Western Hemlock forest community will be restored in all areas disturbed by the project.

With mitigation, the vividness ratings will be average. The intactness and unity ratings will be moderately high. This mitigation will make the visual quality ratings equal to existing conditions.

#### **6.2.4. Key View 10 – MP 64.1 - Cabin Creek Vicinity**

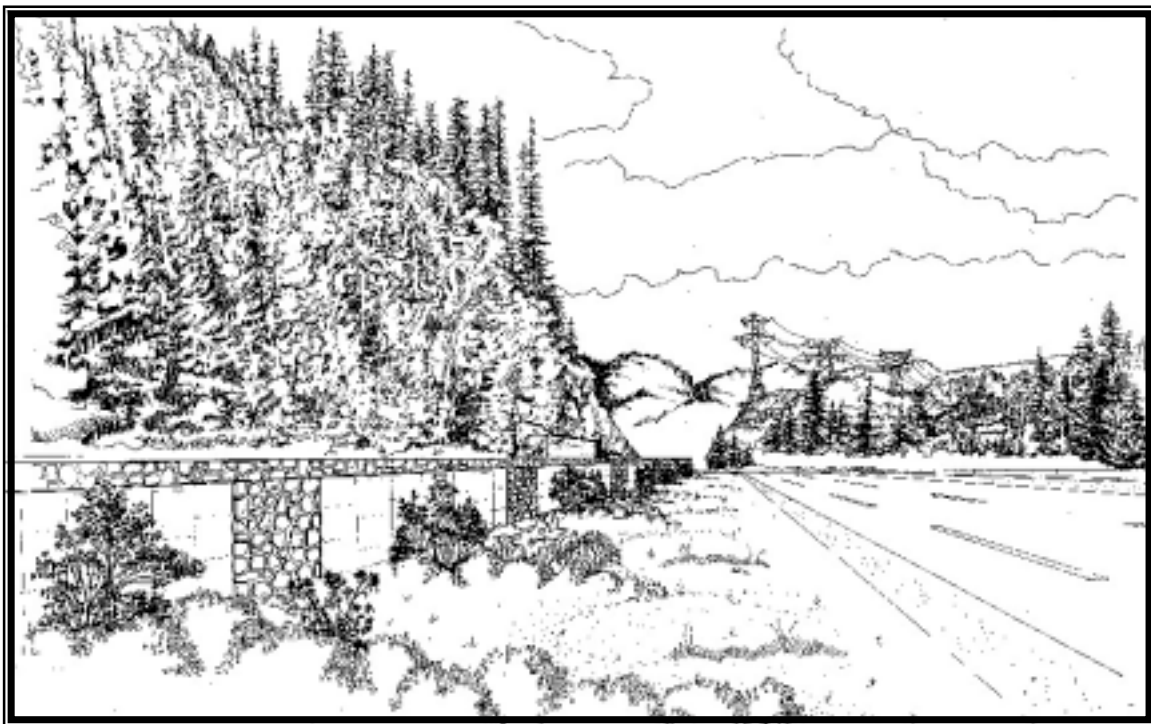
Mitigation should include the avoidance or minimization of disturbance to large Douglas fir trees. The use of a barrier that complies with the Architectural Design Standards for this project will help provide corridor continuity. Restoration of the native forest plant community will provide visual screening along the right of way. Shrubs will be planted in the median and low shrubs, native grasses, or groundcover shrubs will be established on the access ramp shoulders.

With mitigation, vividness and intactness ratings equal existing conditions, but unity ratings are high. Total visual quality is improved to moderately high after mitigation.

### **6.3. LANDSCAPE UNIT 3**

#### **6.3.1. Key View 11 – Eastbound MP 65.8**

Retaining walls will be designed using the Architectural Design Standards for this project. The median will be planted with shrubs to soften the face of the wall and to provide visual interest and color. Traffic barriers should be high to block the view of transmission lines from people in cars to the greatest extent possible. These barriers will comply with the Architectural Design Standards. The concept for Key View 11 is seen in Figure 55.



**Figure 55. Key View 11 after mitigation**

The use of these mitigation measures will bring the vividness, intactness, and unity ratings to pre-construction levels. Total visual quality will be moderate.

### **6.3.2. Key View 12 - Westbound MP 66.4**

Mitigation for this area entails the use of tall traffic barriers to screen the transmission lines from the view of cars while still allowing the view of the mountains in the background. There will be little opportunity for vegetation restoration along this stretch because the median will be below the roadway and the rock face to the right will be near vertical. Vividness is higher than the unmitigated alternative. Intactness and unity ratings are average. Total visual quality at this Key View will be average.

## **6.4. LANDSCAPE UNIT 4**

### **6.4.1. Key View 13 – Eastbound MP 67.8**

#### **6.4.1.1. *Minimum Width Median***

Mitigation at this location will consist of restoration of the existing roadbed and any disturbed roadside area to a native forest ecosystem. Total visual quality ratings for this alternative will be between average and moderately high.

#### **6.4.1.2. *Current Alignment***

Mitigation should include avoidance or minimization of disturbance to existing trees. Guardrail will be considered to allow retention of trees. Restoration of the Grand fir forest will bring the vividness and intactness ratings up to pre construction ratings of moderately high to high.

### **6.4.2. Key View 14 – Westbound MP 67.8 – View up Lake Kachess Valley**

#### **6.4.2.1. *Minimum Width Median***

If the minimum width median alternative is selected, a viewpoint should be created to allow a view, accessed from the westbound lanes, up Lake Kachess Valley. The old roadbed and any newly disturbed roadside areas will be restored to a native forest ecosystem. After mitigation the total visual quality rating is just below existing conditions.

#### **6.4.2.2. *Current Alignment***

If the highway continues in its current horizontal alignment, selected trees should be removed, not topped, to reveal the views up the valley to a greater number of travelers. This is possible without changing the character of the forest if done selectively with a Landscape Architect present.

Guardrails will comply with the Architectural Design Standards and restoration of the native forest will be done in disturbed areas. With mitigation, vividness, intactness, and unity ratings are equal to existing conditions (high).

#### **6.4.3. Key View 15 – Eastbound MP 69**

Road widening will retain as much median width as possible. Most of the vegetation to the southwest of the road is young and could possibly be salvaged for reforestation. Mitigation will include design of bridges, railings, and guardrail to comply with the Architectural Design Standards.

The addition of shrubs in the median will help with headlight and distraction screening. Restoration of a Grand fir forest community in disturbed areas will increase vividness, intactness and unity ratings to moderately high.

#### **6.4.4. Key View 16 – Eastbound MP 69.5**

Mitigation for this Key View will incorporate the Architectural Design Standards into the design of the bridge and its railings. Railings should allow the view of Lake Easton and the Kachess River. Shrubs will be planted in the median for headlight and distraction screening. Mitigations also includes the restoration of all disturbed areas to a Grand fir forest community.

After mitigation, the vividness rating increases to high. Vividness and unity ratings are high. Total visual quality after the project and its mitigation is higher than existing conditions.

#### **6.4.5. Key View H - From Lake Easton State Park Bridge Over Kachess River**

The use of the Architectural Design Standards with a Cascadian theme will improve the view from this Key View because the bridge and its railings are so prominent in the view. Increased groundcover plantings on the road shoulders will soften their appearance and provide a buffer between the roadway and the lake while still providing for unimpaired sight distance.

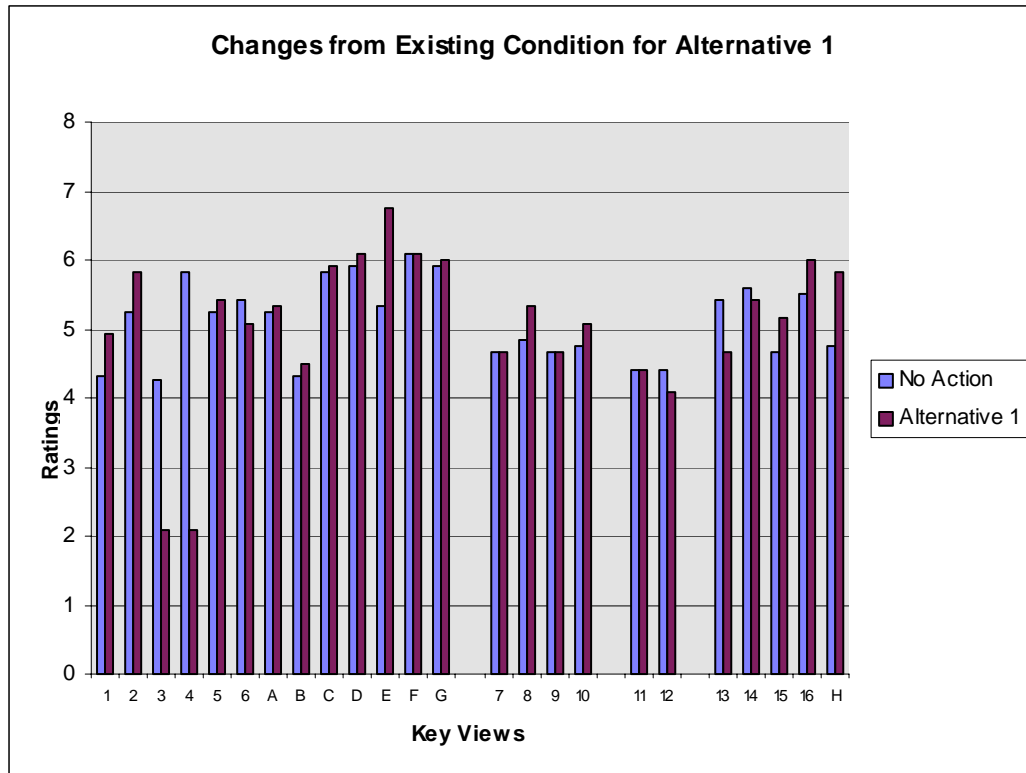
Vividness ratings rise to moderately high to high. Intactness and unity ratings are high. The total visual quality after construction using mitigation is higher than the existing condition.

## **7. CONCLUSION**

Because this project is on a State and National Scenic Byway, visual quality of all components of the project is especially important. Many of the views from, and toward, I-90 already have very high visual quality and retaining that quality is an objective of this project.

### **7.1. ALTERNATIVE 1**

This is the “Long Tunnel” alternative combined with the narrow width median from MP 67 to MP 68. Median widths would increase for much of the project corridor but would narrow in Landscape Unit 4. The long tunnel lowers the visual quality rating, for views from the road, in Landscape Unit 1 to low. The view of the lake would be lost while in the tunnel. While ratings for the view from the road are lower, the view toward the road will have higher visual quality ratings than the existing condition because the footprint and profile of the road would be decreased. This can be seen in Figure 56.



**Figure 56. Changes in Visual Quality Ratings for Alternative 1 from the No Action Alternative**

In all alternatives the visual quality rating for Key View 13 goes down because of the probable removal of some trees that block transmission lines from view in the vicinity of MP 66. The transmission lines are outside the right of way and the land slopes down toward them from the road. The loss of any trees will lower the vividness, intactness and unity ratings for that location.

Visual quality ratings for the views *toward* the road are generally higher in Alternative 1 than existing conditions. However, views *from* the road are much lower in Key Views 3 and 4, the areas impacted by the long tunnel. Views from the road are also lower at Key View 6 and Key Views 12, 13, and 14. Table 1 shows the number of views and their direction of change from existing conditions.

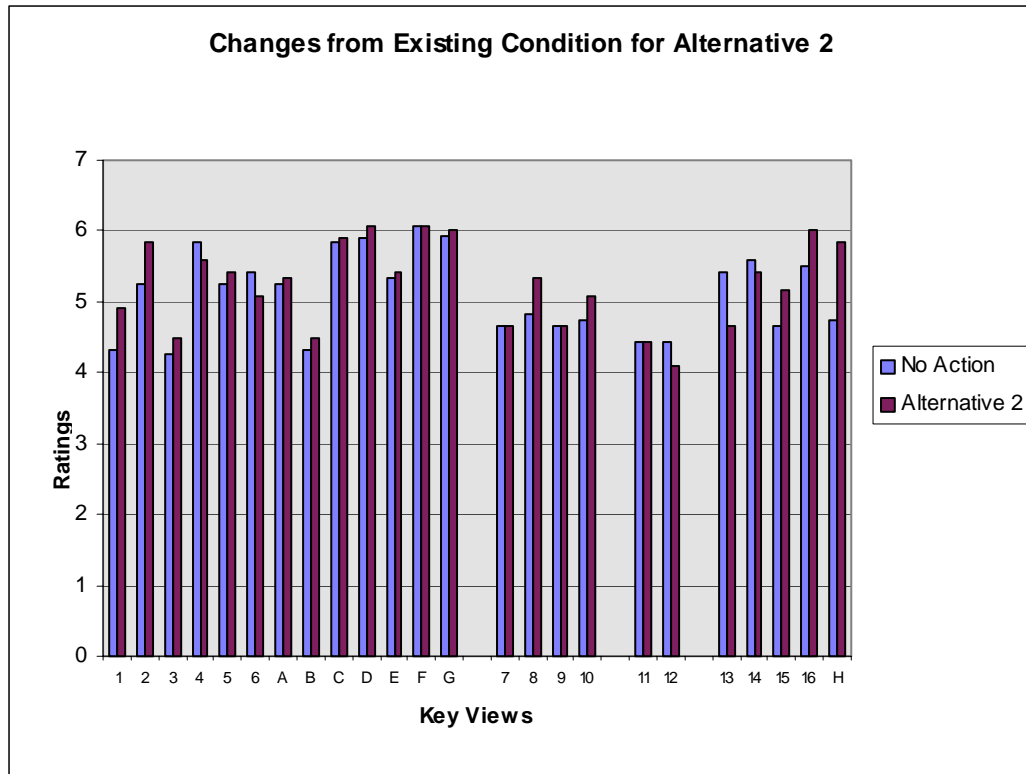
Higher visual quality ratings	14
Equal visual quality ratings	4
Lower visual quality ratings	6

**Table 1. Variation from existing condition for Alternative 1**

## 7.2. ALTERNATIVE 2

Alternative 2 is the “short tunnel” alternative combined with the narrow-width median from Mile Post 67 to 68. As in Alternative 1, median widths would increase throughout much of the project corridor except from MP 67 to 68 where they will narrow considerably. The narrowing of the median here will lower the visual quality ratings for that mile, as demonstrated in Key Views 13 and 14, because opposing directions of traffic would be visible from the other direction of travel. Visual quality ratings while in the tunnel do not drop significantly because of the short length of

time spent in the tunnel while traveling at the posted speed limit. The view of the lake would be retained because of the viewpoint at Slide Curve.



**Figure 57. Changes in Visual Quality Ratings for Alternative 2 from Existing Conditions**

Views *toward* the road are all equal or higher than existing conditions. Views *from* the road are lower at the entrances to the tunnels, at MP 66 where the transmission lines are expected to be more visible, and where the narrowed median may allow views of opposing directions of traffic. Table 2 shows the number of views and their direction of change for Alternative 2.

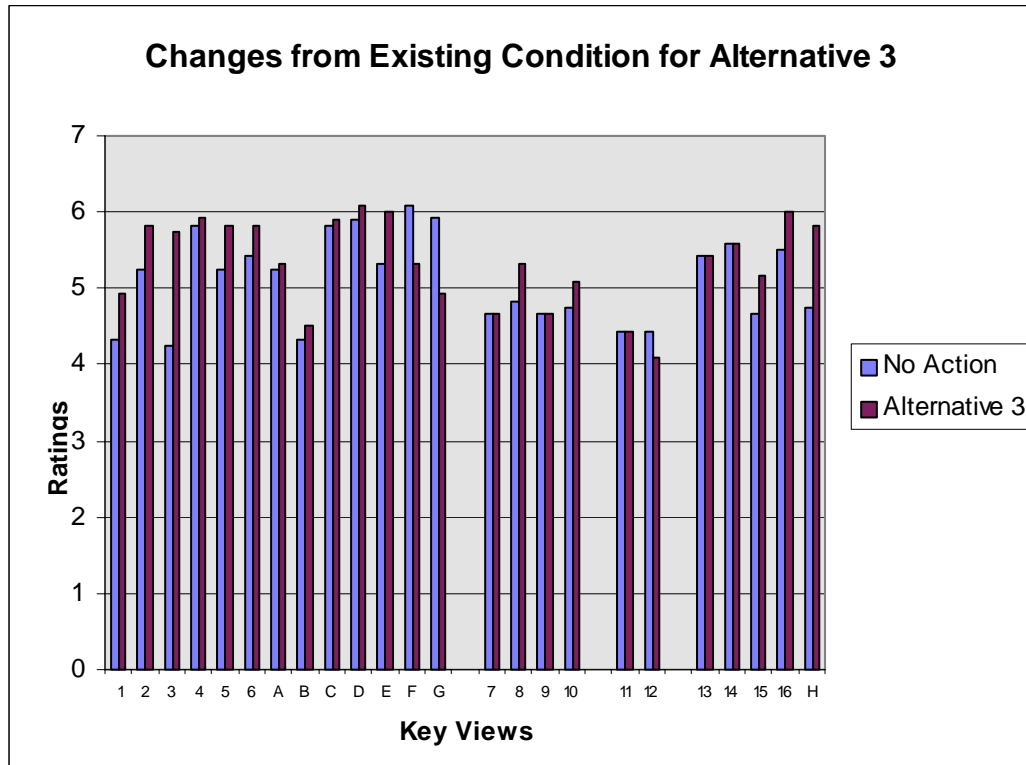
Higher visual quality ratings	15
Equal visual quality ratings	4
Lower visual quality ratings	5

**Table 2. Variation from existing condition for Alternative 2**



### 7.3. ALTERNATIVE 3

Alternative 3 is the “bridge alternative” combined with the retention of the wide median between MP 67 and MP 68.



**Figure 58. Changes from the Existing Condition for Alternative 3**

Visual quality ratings *from* the road are higher for this alternative because the bridge brings the traveler closer to the water, especially on the eastbound lanes. As in the other alternatives, Key View 12 is lower than existing conditions because the necessity of removing vegetation increases the views of the transmission towers. Views toward the road, especially from the southern end of the John Wayne Trail at Lake Keechelus, are lower because of the construction of the bridge into the lakebed and the cuts into the hillside near MP 60.70. This study also assumed the design of the bridge structures would be visually pleasing, especially from viewpoints across the lake. Table 3 shows the number of views and their direction of change for Alternative 3.

Higher visual quality ratings	16
Equal visual quality ratings	5
Lower visual quality ratings	3

**Table 3. Variation from existing condition for Alternative 3**

## 7.4. COMBINATION OF ALTERNATIVES

If the “short tunnel” alternative were combined with the wide median from MP 67 to MP 68, visual quality ratings would be as seen in Table 4.

Higher visual quality ratings	15
Equal visual quality ratings	6
Lower visual quality ratings	3

**Table 4. Variation from existing condition for combination of Alternatives**

This combination of alternatives would provide a low number of sites where the visual quality ratings would be lowered as well as a high number of raised visual quality ratings.

Where possible the median will be wide enough to allow planting of shrubs or small multi-stem trees to provide visual screening between east and west bound lanes of traffic. This aligns with one of the Mountains to Sound Greenway Trust’s highest goals and the policies in the *Roadside Classification Plan*.

Consistent use of the Architectural Design Standards for this project, which have been developed by WSDOT, in consultation with the USDA Forest Service and Mountains to Sound Greenway Trust, will provide a strong theme for the corridor and enhance the experience of traveling on I-90. Restoration of the native forest plant community will provide visual screening, driver guidance, and distraction screening as well as multiple environmental benefits.

With mitigation this project will visually enhance this section of the Mountains to Sound Greenway.

## 8. REFERENCES

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## 9. ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Explanation
encroachment	undesirable eyesores
FHWA	Federal Highway Administration
MP	mile post
swale	A wide, shallow drainage area used to infiltrate stormwater or direct water to another area.

## **10.APPENDICES**

### **10.1. APPENDIX A: RATINGS AND EVALUATIONS SHEETS**

## 10.2. APPENDIX B: VIEWPOINTS CONSIDERED BUT NOT RATED

This study considered all likely viewpoints from and toward the project corridor. Not all views were analyzed because of the limited number of viewers from these locations or the limited duration of views. The following representative views were considered, as were many others, but were not analyzed using the Federal Highway Administration assessment protocols.

### 10.2.1. Landscape Unit 1

Figure 60 shows the view from FS Rd 4832 at the beginning of the project. The view is south looking toward the lake. This road is traveled by people going to Gold Creek Pond, a popular stop for picnicking.



**Figure 60. View south from FS Rd 4832 at MP 55.10.**

Figure 61 shows the view from FS Rd 4832 up Gold Creek Valley. This view is one that can also be seen from I-90 where it passes over the Gold Creek Bridge.



**Figure 62. View up Gold Creek Valley MP 55.5 vicinity**

Figure 63 was also taken from FS Rd 4832 looking toward I-90 and the two culverts through which Gold Creek flows. These culverts will be replaced by a bridge as a part of this project.



**Figure 63 View from FS Rd 4832 of Gold Creek culvert under Eastbound I-90**

Figure 64 was taken from farther south on FS Rd 4832. It looks north toward the ski slopes and I-90 at the beginning of the project. Because of the distance and the limited use of this section of the road, this view was not analyzed.



**Figure 64. View north on FS Rd 4832 from Wolf Creek bend**

Figure 65 looks down on I-90 near the northern end of Landscape Unit 1. Because of the limited number of viewers from this point and the duration of the view, this view was not analyzed.



**Figure 65. View south from FS Rd at Resort Creek bend**

### **10.2.2. Landscape Unit 2**

Figure 66 was taken from the gore at the westbound Swamp Lake Road onramp. This building is the only one along the entire project corridor adjacent to the highway. The project is not expected



to impact this building. There is not enough right of way to plant screening evergreens between the ditch line and the fence line.



**Figure 666. Lake Kachess Lodge development at Swamp Lake Rd westbound onramp**

Figure 67 shows a closer view of the mature Douglas firs just south of the Cabin Creek exit. The car on the right is on Cabin Creek Road.



**Figure 677. View of mature trees south west of Cabin Creek Rd exit**

### 10.2.3. Landscape Unit 4

Figure 68 shows the transmission lines as they stand above the highway at westbound MP 67. 7. The lines parallel the highway to the north until they cross I-90 in the vicinity of MP 65.7. Because these lines are uphill from the highway, the traveler does not see them after the vehicle passes the tower in the center of the view. The project will not impact this part of the hillside.



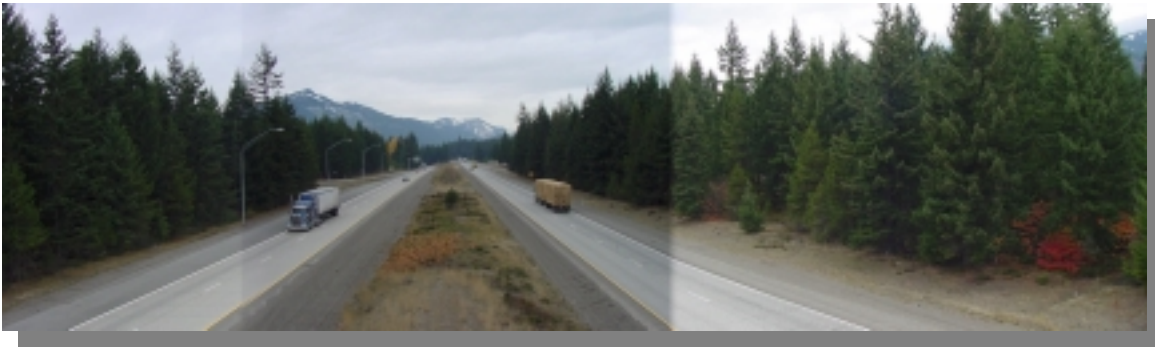
**Figure 688. Power lines at Westbound MP 67.5**

Figure 69 shows the view toward I-90 from a clear-cut slope south west of I-90. This photo was taken from a little used Forest Service Road above the vicinity of MP 69. It shows the current condition of clearcut slopes that will more easily be seen from I-90 if trees are removed. I-90 can be seen as a small white spot in the center of the photo.



**Figure 699. Typical regrowth on logged slope in project viewshed**

The photo in Figure 70 was taken from the bridge at Easton. This is the southern project limit.



**Figure 70. From the bridge at Easton, MP 70.3**

## 10.3. APPENDIX D – NATIVE PLANT LIST FOR I-90 PROJECT CORRIDOR

There are three primary forested climax plant vegetation zones<sup>7</sup> within the project limits: a Silver Fir (*Abies amabilis*) zone, a Western Hemlock (*Tsuga heterophylla*) zone, and a Grand Fir (*Abies grandis*) zone. The most common early successional tree species in all three zones is Douglas-fir but a variety of other conifers may occur. Black cottonwood (a deciduous tree), is another early successional species, and is often seen along the roadside within the project corridor.

The climax species are those that will dominate over time given particular soil and microclimate conditions. Planting a climax species on newly exposed roadsides in full sun is often not effective. Usually, early successional species, such as Douglas-fir and cottonwoods will do better on disturbed sites where little shelter is likely and consequently, should be planted first. A managed succession strategy that is spread over a minimum of five years allows for the addition of climax species once the early successional species become established and provide shading.

From a visual perspective the addition of climax species provides interest and an increased sense of place. Tree shapes and colors vary between climax species in the three communities. This can contribute to complexity and interest for travelers. An emphasis on shrubs and small multi-stemmed trees will safely provide for plantings in the median and Clear Zone and will provide habitat and other environmental benefits as well as spring flowers and fall color. Trees will be planted where they can safely be allowed to grow to maturity.

### 10.3.1. MP 55.1 to MP 62 Vicinity – Silver Fir Climax Zone

#### 10.3.1.1. Trees

Douglas-fir (*Pseudotsuga menziesii*)  
Black Cottonwood (*Populus balsamifera* ssp. *trichocarpa*)  
Silver Fir (*Abies amabilis*)  
Western Red Cedar (*Thuja plicata*) – on warmer, wet sites  
Western Hemlock (*Tsuga heterophylla*)  
Grand fir (*Abies grandis*)  
Noble fir (*Abies procera*)

#### 10.3.1.2. Shrubs

Vine Maple (*Acer circinatum*)  
Oregon boxwood (*Pachistima myrsinites*)  
Tall Oregon Grape (*Mahonia aquifolium*)-driest sites  
Cascade Oregon Grape (*Mahonia nervosa*)  
Red Flowering Currant (*Ribes sanguineum*)  
Red Osier Dogwood (*Cornus sericea*) - moist sites  
Bald-hip Rose (*Rosa gymnocarpa*)  
Thimbleberry (*Rubus parviflorus*)  
Sitka Alder (*Alnus sitchensis*)  
Serviceberry (*Amelanchier alnifolia*)-driest sites  
Oceanspray (*Holodiscus discolor*)-driest sites

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<sup>7</sup> Not all experts accept the Climax concept, however it is the most widely accepted theory of plant community development at this time. Because of its ease of use as a conceptual framework it will be used in this study.

Alaska or Oval-leaf Huckleberry (*Vaccinium alaskense* or *ovalifolium*)  
Thin leaved Huckleberry (*Vaccinium membranaceum*)  
Dwarf bramble or five-leaved bramble (*Rubus lasiococcus* or *pedatus*) creeping subshrubs

#### **10.3.1.3. Grasses & Forbs**

Blue wildrye (*Elymus glaucous*)  
Mountain hairgrass (*Deschampsia atropurpurea*)  
Thruer bentgrass (*Agrostis thurberiana*)  
Alpine timothy (*Phleum alpinum*)  
Columbia Brome (*Bromus vulgaris*)  
Bear Grass (*Xerophyllum tenax*)  
Pearly everlasting (*Anaphalis margaritacea*)

Merten's sedge (*Carex mertensii*)  
Showy sedge (*Carex spectabilis*)  
Thick-headed sedge (*Carex pachystachya*)

### **10.3.2. MP 62 to MP 67.5 Vicinity – Western Hemlock Climax Zone**

#### **10.3.2.1. Trees**

Western Hemlock (*Tsuga heterophylla*)  
Douglas-fir (*Pseudotsuga menziesii*)  
Black Cottonwood (*Populus balsamifera* ssp. *trichocarpa*)  
Grand fir (*Abies grandis*)  
Western White Pine (*Pinus monticola*)

#### **10.3.2.2. Shrubs**

Oregon boxwood (*Pachistima myrsinites*) dry sites  
Vine Maple (*Acer circinatum*)  
Sitka Alder (*Alnus sitchensis*)  
Tall Oregon Grape (*Mahonia aquifolium*) dry sites  
Cascade Oregon Grape (*Mahonia nervosa*)  
Big Huckleberry (*Vaccinium membranaceum*)  
Elderberry (*Sambucus racemosa*)  
Serviceberry (*Amelanchier alnifolia*) dry sites  
Oceanspray (*Holodiscus discolor*) dry sites  
Twinflower (*Linnaea borealis*) creeping subshrub

#### **10.3.2.3. Grasses & Forbs**

Blue wildrye (*Elymus glaucous*)  
Bear Grass (*Xerophyllum tenax*)  
Pearly everlasting (*Anaphalis margaritacea*)

### **10.3.3. MP 67.5 to MP 70.3 Vicinity – Grand Fir Climax Zone**

#### **10.3.3.1. Trees**

Douglas-fir (*Pseudotsuga menziesii*)

Black Cottonwood (*Populus balsamifera* ssp *trichocarpa* )  
Grand Fir (*Abies grandis*)  
Ponderosa Pine (*Pinus ponderosa*)  
Western Hemlock (*Tsuga heterophylla*)

#### **10.3.3.2. Shrubs**

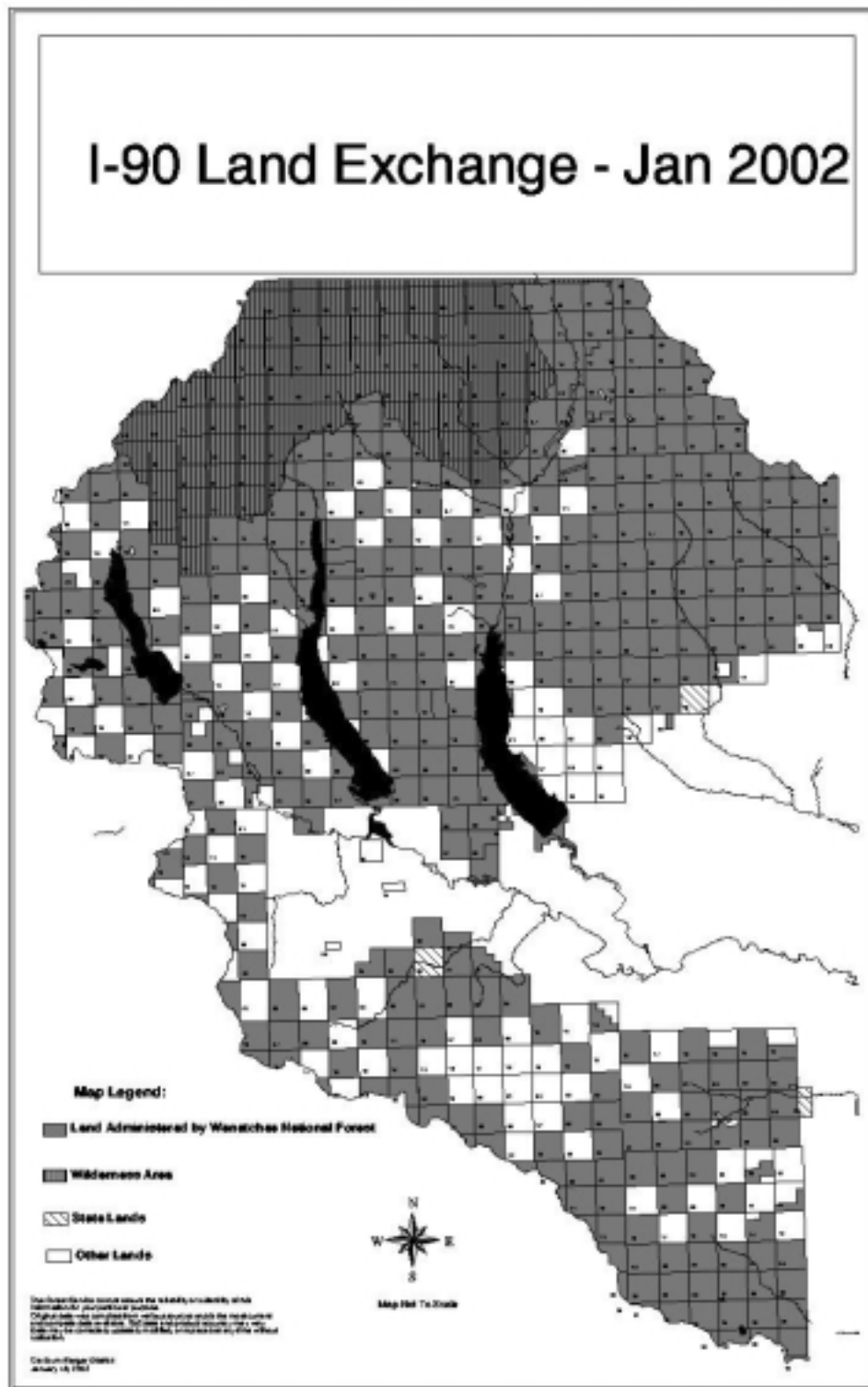
Vine Maple (*Acer circinatum*)  
Oregon boxwood (*Pachistima myrsinites*)  
Tall Oregon Grape (*Mahonia aquifolium*)  
Cascade Oregon Grape (*Mahonia nervosa*)  
Red Flowering Currant (*Ribes sanguineum*)  
Serviceberry (*Amelanchier alnifolia*)  
Oceanspray (*Holodiscus discolor*)  
Scouler's Willow (*Salix scouleriana*)  
Blue Elderberry (*Sambucus cerulea*)  
Thimbleberry (*Rubus parviflorus*)  
Nootka Rose (*Rosa nutkana*)  
Bald-hip Rose (*Rosa gymnocarpa*)  
Kinnickinnick (*Arctostaphylos uva ursi*)  
Thin-leaved huckleberry (*Vaccinium membranaceum*)  
Common or Creeping Snowberry (*Symphoricarpos albus* or *mollis*)  
Twinsflower (*Linnaea borealis*)-creeping subshrub

#### **10.3.3.3. Grasses & Forbs**

Idaho Fescue (*Festuca idahoensis*)-driest sites  
Sandberg's Bluegrass (*Poa sandbergii*)-driest sites  
Bluebunch Wheatgrass (*Agropyron spicatum*)-driest sites  
Pinegrass (*Calamagrostis rubesens*)  
Hairgrass (*Deschampsia elongata*)  
Blue wildrye (*Elymus glaucous*)  
Western yarrow (*Achillea millifolium*)  
Pearly everlasting (*Anaphalis margaritacea*)  
Parsnip-flowered Buckwheat (*Eriogonum heracleoides*)-driest sites



#### 10.4. APPENDIX E - JANUARY 2002 LAND OWNERSHIP ALONG PROJECT CORRIDOR



## 10.5. APPENDIX F – VIEWSHED ANALYSIS

This diagram is a geographic information system (ArcInfo) analysis of what is viewable from the road. All items in red are blocked from the view of the traveler on I-90.

